TOMBERLIN® CONSUMER DISCLAIMER

Tomberlin® reserves the right to change the suggestions gained in this consumer support site. It is intended primarily for educational purposes only. Some experienced consumers prefer to do the maintenance and service themselves, for the "Do It Yourself" owners, Tomberlin strongly encourages interaction with your local dealer first and to never attempt a procedure you are unfamiliar with safely performing. An electric vehicle has a significant voltage that can result in shock, fire and injury if not performed by a professional. Damage to the vehicle can also occur. Some procedures require specific torque settings that when not followed can result in dangerous, possibly life threatening situations. Many errors will not surface immediately. The information herein has generally proven to enhance the life cycle, safety and overall ownership experience when properly followed. Tomberlin assumes no liability for the content provided in this consumer educational section and it is possible that an error with regard to spelling, grammar, nomenclature, and translation is present. Note that the information provided should be treated as live documents meaning they are always in a state of refinement, correction and improvement. Check back often and if printed, check back prior to reliance to assure they remain current. Never attempt to manipulate the vehicle to exceed the speed as required by regulations. The highest speed range for Tomberlin® E-Merge™ PTV's and LSV's are factory set at 15-19 mph as a PTV or 22-25 mph as an LSV. Consumers should always exercise prudent common sense measures, use proper safety gear with tools designed specifically for the task. Always utilize insulated tools around electrical connections. Never exceed your comfort level and when in doubt, stop and call your local dealer. Tomberlin Authorized Dealers are always your best resource. If you notice an error or have an idea that will improve our efforts here, please email your idea to info@tomberlin.net.

VANISH™

OPERATOR'S MANUAL

Electric 4x4 Low-Speed Vehicle (LSV)

⚠ WARNING

- THE TOMBERLIN VANISH IS EQUIPPED TO OPERATE AT A TOP SPEED OF 25 MPH (40KPH) AND IS INTENDED FOR USE AS A LOW-SPEED-VEHICLE.
  NEVER OPERATE THE VEHICLE ON ANY ROAD PUBLIC OR PRIVATE WITH A POSTED SPEED LIMIT ABOVE 35 MPH.

⚠ WARNING

WHEN OPERATING VEHICLE ON PUBLIC ROADS

THIS VEHICLE OFFERS MUCH LESS CRASH PROTECTION THAN A REGULAR CAR, VAN, OR TRUCK. THIS MEANS A HIGHER RISK OF INJURY OR DEATH IN COLLISIONS, EVEN AT LOW SPEEDS. THE HIGHER THE SPEED OF THE TRAFFIC AROUND YOU, THE HIGHER THE RISK OF INJURY.

To reduce these risks:

- Obey all traffic regulations.
- Avoid roads with regular traffic, even if the speed limit is low.
- Whenever possible, stay on roads and lanes limited to low speed vehicles.
- Wear your safety belts at all times.
- Avoid operating vehicle at night, because your vehicle may be hard for others to see.
- To reduce the chance of the vehicle tipping over, reduce speed when turning and maneuvering thru curves and hills.
- Never drink and drive. Not only is drinking and driving unsafe, but doing so may violate state and local laws.

⚠ WARNING

THIS PRODUCT CONTAINS OR EMITS CHEMICALS OR SUBSTANCES THAT HAVE BEEN DETERMINED BY THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

FOREWORD

Thank you for choosing the VANISH. Your satisfaction with your new vehicle is important to all of us at Tomberlin. This user manual was prepared with the comfort and safety of the occupants in mind. It provides all the details necessary to safely operate and maintain your vehicle. Carefully read the manual before operating your VANISH.

If you have any questions regarding your VANISH, contact your local TOMBERLIN dealer for assistance. Please take the time to review this Operator's Manual and abide by all safety and operation warnings before allowing you or anyone to operate your VANISH.

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WELCOME

Welcome to our worldwide family of Tomberlin owners. We proudly produce an exciting line of utility and recreational products.

- Low Speed Vehicles (LSV)
- All-terrain vehicles (ATVs)
- Neighborhood vehicles
- Scooters

We believe Tomberlin sets a standard of excellence for all on-road, utility and recreational vehicles manufactured in the world today. Many years of experience have gone into the engineering, design, and development of your Tomberlin vehicle. For safe and enjoyable operation of your vehicle, be sure to follow the instructions and recommendations in this owner's manual.

Your manual contains instructions for minor maintenance, but major repairs should be performed only by a factory certified technician. Your Tomberlin dealer knows your vehicle best and is interested in your total satisfaction. Be sure to return to your dealership for all of your service needs during, and after, the warranty period.

Familiarizing yourself with the Operator's Manual and warnings will help avoid possible personal injury and property loss.

We hope that you will consider this manual an indispensable part of the vehicle. The information contained in this document is subject to change without notice. Tomberlin reserves the right to make design changes to vehicles without obligation to make these changes on units previously sold.

VIN

Record your vehicle's identification numbers and key number in the spaces provided. Remove the spare key and store it in a safe place. A key can be duplicated only by ordering a key blank (using your key number) and mating it with one of your existing keys. The key switch must be replaced if all keys are lost.

Vehicle Model Number	VANISH 4x4 LSV 2010
Frame VIN	
Motor Serial Number	
Key Number	

- Frame VIN is located on panel to left of brake pedal and also stamped into the vehicle frame to the upper left of the front right side tire.

SPECIFICATIONS

Key Features	
Street Legal LSV	Yes, Meets or Exceeds FMVSS500 LSV Standards
Windshield	Included, AS-4 Meets FMVSS 500 With Machined Aluminum Clamps
Mirrors	Drivers and Passengers Side
Lighting	Dual 35 Watt Headlights, Tail Lights, Brake Lights, Turn Signals, Hazard Flasher Lights, Front, Rear & Side Reflectors
Instrumentation	Speedometer, Program Mode, ScoutMode, F-N-R Switch, Battery Life Indicator
Multi-Mode Switch	3 Modes: • Low (100% Torque, 15 mph) • Max Range (50% Torque, 15 mph) • High Speed (80% Torque, 25 mph)
Scout Mode Speed Control	Yes, 3 mph & 6 mph Max Controlled Speed When Engaged At Will
Leg Restraints	Side Web Leg Restraints
Auxillary Power	12 Volt Accessory Outlet
Battery Watering System	Standard: Battery Filling Systems With Fill Tank

Tomberlin VANISH LSV	
Dimensions	
Weight: With Batteries	1550 lb (704.5 kg.)
Wheelbase	72.8 in. (185.0 cm)
Length / Width / Height	107.5" x 57.8" x 75.5" With Canopy Top (273 cm / 147 cm / 192 cm)
Ground Clearance	10.5" (26.6 cm) Under Foot Platform
Load Capacity	
Bed Box Dimension	35" x 36.75" x 8" (88.9 cm x 93.3 cm x 20.3 cm)
Bed Box Capacity	500 lb. (226.8 kg.)
Total Payload Capacity (Occupants & Cargo)	1000 lbs (454.5 kg)
Hitch Towing Rating	1,500 lb (681.8 kg.)
Cargo Containment System	Molded in Bed Load Dividers
Hitch / Type	2" Receiver
Seating	Bench Seat (2 Occupants)
Storage	Glove Box & Front Trunk Storage
Performance	
Motor Type	Single 48-Volt, High-Efficiency, AC-Induction Motor
HP	Kollmorgen TSP 112/4-130 24 hp Peak
Controller	Kollmorgen 350 amp
Batteries	8 - 6 Volt Lead Acid in 1 - 48 Volt Pack (Sized for Optional AGM)
Charger	Delta Q, Automatic, Onboard, 120 Volt Input Current
Charger Time	8 - 12 Hours (dependent on depth of discharge)
Total Battery Capacity	251 ah per US Battery 145XC = 12.048 kwh
Top Speed	25 mph (40.2 km/h)
Range (in Max Range Mode on Level, Hard Ground)	50+ Miles (will vary based on driving conditions)

Drivetrain	
Transmission	**High/ Low / Neutral Gear Box with Transfer Case**
Drive System	**On-Demand 4x4 / 2WD; Front limited-slip differential gear**
Final Drive	**Shaft Drive with Low Noise Gears**

Brake Systems	
Front Brake	**Dual Hydraulic Discs**
Rear Brake	**Dual hydraulic Discs**
Motor Braking System	**Re-Generative Braking**
Parking Brake	**Hand-Actuated; Independent System, Dual Mechanical Rear Disc**
Suspension	
Front Suspension	**Independent Double Wishbone 6.2" Travel (15.7 cm)**
Rear Suspension	**Independent Double Wishbone, IRS; 9.5" Travel (24.1 cm)**
Front Tires	**25 × 8-12" Off Road Kenda 578F**
Rear Tires	**25 × 10-12" Off-Road Kenda 579**
Wheels	**Stamped Steel**
Tire Pressure	**Front: 10 psi Rear: 14 psi**
Rear Tires	**25 × 10-12" Off-Road Kenda 579**
Wheels	**Stamped Steel**
Tire Pressure	**Front: 10 psi Rear: 14 psi**

SAFETY / WARNING DECALS

The VANISH is an on and off-road vehicle. Familiarize yourself with all laws and regulations concerning the operation of this vehicle in your area. The following signal words, labels, and symbols appear throughout this manual and on your vehicle. Your safety is involved when these words and symbols are used. Become familiar with their meanings before reading the manual.

SAFETY ICONS

It is required to read the Owner's manual completely before operating the vehicle or attempting repair work. Any violations of instructions in the manual may lead to property loss, serious injury, or even death.
Pay special attention to important statements with the words such as "Danger, Warning, Caution"

** A DANGER indicates an extremely hazardous situation which, if not avoided, may result in death or serious injury.*

** A WARNING indicates a hazardous situation which, if not avoided, may result in death or serious injury.*

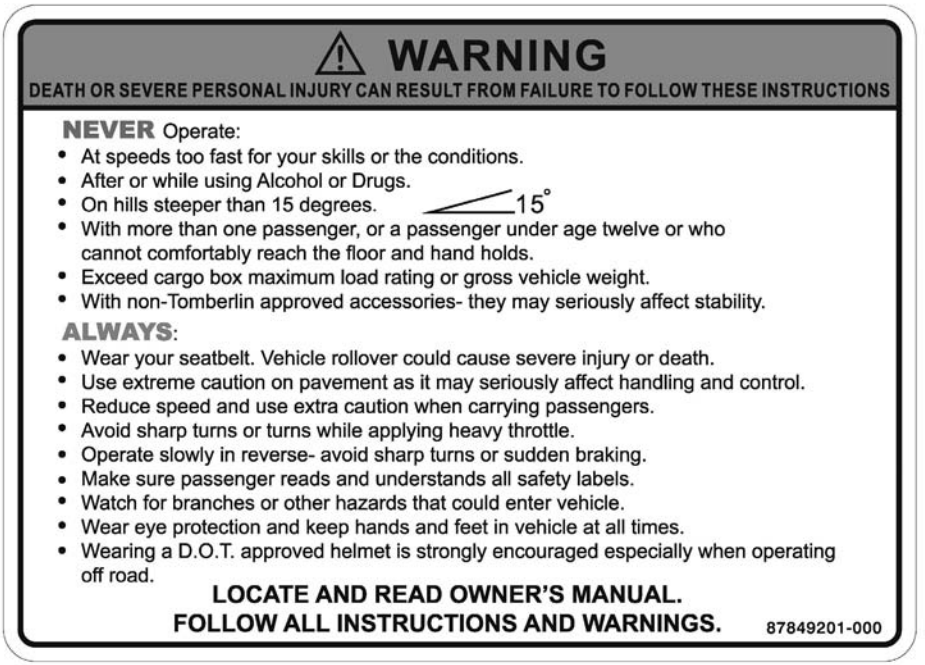
** A CAUTION indicates a hazardous situation which, if not avoided, may result in minor, moderate injury or property damage.*

SAFETY DECALS AND LOCATIONS

Safety decals have been placed on the vehicle for your protection. Read and follow the instructions of the labels on the vehicle carefully. If any of the labels depicted in this manual differ from the labels on your vehicle, always read and follow the instructions of the labels on the vehicle. If any of the operation/warning decals are damaged, defaced, destroyed, or illegible it is important that they be replaced with new decals. Please contact the manufacturer or your dealer to obtain new decals.

** Read, understand, and follow all of the instructions and safety precautions in this manual and on all product labels.*

** Failure to follow the safety precautions could result in serious injury or death.*


WARNING
DEATH OR SEVERE PERSONAL INJURY CAN RESULT FROM FAILURE TO FOLLOW THESE INSTRUCTIONS
NEVER Operate:
• At speeds too fast for your skills or the conditions.
• After or while using Alcohol or Drugs.
• On hills steeper than 15 degrees.
15°
• With more than one passenger, or a passenger under age twelve or who cannot comfortably reach the floor and hand holds.
• Exceed cargo box maximum load rating or gross vehicle weight.
• With non-Tomberlin approved accessories- they may seriously affect stability.
ALWAYS:
• Wear your seatbelt. Vehicle rollover could cause severe injury or death.
• Use extreme caution on pavement as it may seriously affect handling and control.
• Reduce speed and use extra caution when carrying passengers.
• Avoid sharp turns or turns while applying heavy throttle.
• Operate slowly in reverse- avoid sharp turns or sudden braking.
• Make sure passenger reads and understands all safety labels.
• Watch for branches or other hazards that could enter vehicle.
• Wear eye protection and keep hands and feet in vehicle at all times.
• Wearing a D.O.T. approved helmet is strongly encouraged especially when operating off road.
LOCATE AND READ OWNER'S MANUAL.
FOLLOW ALL INSTRUCTIONS AND WARNINGS.
87849201-000

⚠ WARNING

DEATH OR SEVERE PERSONAL INJURY CAN RESULT FROM FAILURE TO FOLLOW THESE INSTRUCTIONS

- **Rollover or falling off may cause death.**
- Read operating instructions in owners manual before operation.
- Do not drive through water above the floor of the vehicle. Battery, motor and/or controller damage will occur.
- Operate in compliance with all state and local laws including:
  -Use of seat belts
  -Driver's license requirements
  -Improper use of alcohol or drugs
- Set parking brake before leaving vehicle.
- Turn key switch off and remove key when not in use.
- Maximum speed is regulated by motor braking.
- To tow or service vehicle, turn key to "off", shift transmission to neutral.
- Maximum towing speed 25mph (40kmh)- drivetrain damage will occur if towed faster than25mph (40kmh).
- Before using this vehicle, read operating instructions.
- Do not start vehicle until all occupants are seated with their seat belt properly fastened.
- Remain seated with seat belt fastened while moving.
- Two (2) persons maximum per seating row.
- Operate from driver side only.
- Keep entire body in vehicle while moving.
- Drive slowly in turns and straight up and down slopes.
- Do not leave children unattended on vehicle.
- Never operate under the influence of alcohol or drugs.

⚠ WARNING

DEATH OR SEVERE PERSONAL INJURY CAN RESULT FROM FAILURE TO FOLLOW THESE INSTRUCTIONS

- Inspect battery terminals, cables and batteries before each use.
- Always wear a full face shield, rubber gloves and rubber apron when working with or in close proximity to batteries.
- Turn the ignition switch to the off position, remove the key, set the park brake, unplug the charger and place the transmission in neutral before inspecting or performing any type of service on the vehicle.
- Connections should be tight and free of corrosion.
- Utilize only insulated tools when working with electrical connections.
- The tightness of the battery terminal nuts should be between 95-105 inch pounds of torque. Do not over tighten. Loose and/or over tightened connections can cause battery failure, explosion and or fire.
- Do Not Overfill the Batteries and keep batteries clean and free of moisture.
- If any high heat condition or burning smell is noticed immediately park the vehicle in a safe location, place the ignition in the off position, move yourself and passengers away quickly to a safe distance from the vehicle and contact your dealer for assistance and repair. If fire or smoke is detected contact your local fire department immediately. Do not store your vehicle inside if any of these conditions exist.
- Only use recommended batteries of the correct size.

87735202-000

⚠ WARNING

Operating this vehicle if you are under the age of 16 increases your chance of severe injury or death.

NEVER operate this vehicle if you are under 16 and **NEVER** operate this vehicle without a valid driver's license.

87851205-000

⚠ WARNING

- VEHICLE ROLLOVER could cause severe injury or death. This cab frame is not designed or intended to provide rollover protection.
- ALWAYS WEAR YOUR SEAT BELT for maximum protection.

WARNING! Any changes, repairs or modifications to the controller, motor or electrical system outside the parameters set by the factory or the original design may be in violation of Federal Motor Vehicle Safety Standards. Additionally, this could void the warranty, cause damage to the vehicle, and/or serious bodily injury to the driver/passenger of the car.

87852203-000

Warning Concerning Modifications

⚠ WARNING

IMPROPER TIRE PRESSURE OR OVERLOADING can cause loss of control resulting in SEVERE INJURY OR DEATH.

TIRE PRESSURE(PSI): FRONT 10 REAR 14

MAXIMUM CARGO BOX CAPACITY 500 LBS

Reduce speed and allow greater distance for braking when carrying cargo. Overloading or carrying tall, off-center, or unsecured loads will increase your risk of losing control. Loads should be centered and carried as low as possible in box. For stability on rough or hilly terrain, reduce speed and cargo. Do not extend load over the side of the box.

Read Owner's Manual for more detailed loading information.
Never load cargo on tailgate.

87864205-000

WARNING
TIRE PRESSURE(PSI): FRONT 10 REAR 14
MAXIMUM CARGO BOX CAPACITY 500 LBS
Read Owner's Manual for more detailed loading information.
Never load cargo on tailgate.
87864205-000

Tire pressure/cargo box capacity warning

TO IMPROVE BATTERY LIFE:

- **Keep batteries fully charged. even after short trips.**
- **Keep connected to Tomberlin Charger whenever possible.**
- **Limit the number of times of heavy discharge.**

BATTERY MAINTENANCE- Consult owner's manual

- **Always follow safety warnings , wear eye protection and proper clothing.**
- **Check battery electrolyte level monthly or more often during heavy use.**
- **Add only distilled water to batteries.**
- **Never charge when battery electrolyte level is below the battery plates.**

87852204-000

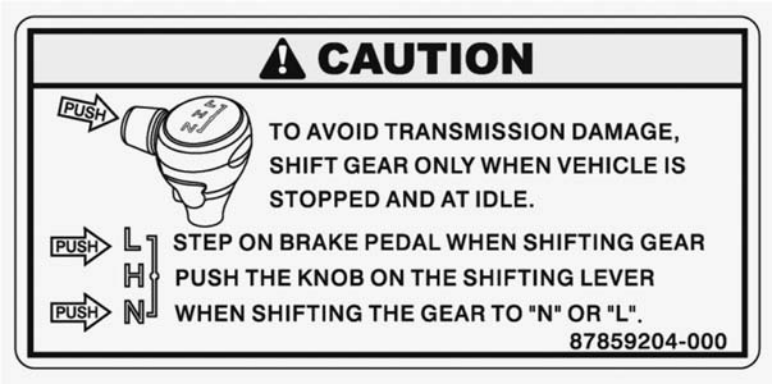
⚠ WARNING

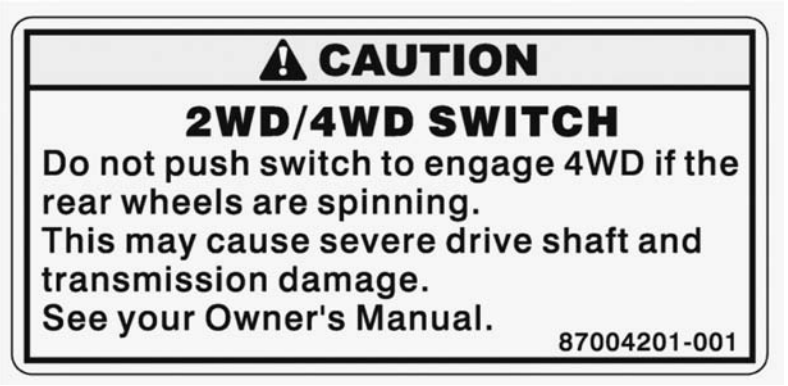
Use of the improper extension cord could result in a risk of fire or electric shock

- Do not operate the battery charger with a damaged cord or plug
- Do not connect the charger and another device to a single 15A/20A circuit or the circuit may become overloaded
- Do not alter AC cord or plug provided, if it does not fit outlet, have outlet inspected by a qualified electrician
- Do not use an extension cord that is not properly wired and in good electrical condition
- Do not use extension cord(s) that total more than 50 feet in length (15 meters)
- Always make sure that all the wires in the extension cord are sized to 14 AWG or larger
- Always connect charger power cord to an outlet that has been properly installed and grounded in accordance with all local codes and ordinances
- Always use a grounded outlet to reduce risk of electric shock – do not use ground adapters or modify plug

87852205-000

Battery maintenance and extension cord warnings on inner rear fender.





Transmission and 4WD/2WD warnings on dashboard

WARNING
ROLLOVER OR FALLING OFF
MAY CAUSE DEATH.
• Before using vehicle, read operating instructions.
• Remain seated and hold on to handle while moving.
• Do not start vehicle until all occupants are seated.
• Two(2) persons per seat maximum
• Operate from driver side only.
• Keep entire body inside vehicle while moving.
• Drive slowly in turns and straight up and down slopes.
• Do not leave children unattended on vehicle.
• Never operate under the influence of alcohol ordrugs.
• Use brakes to reduce speed when coasting downhill.
• Never stand in front of or behind vehicle.

Rollover warning decal on passenger side panel

PRECAUTIONS

The VANISH is designed and manufactured as a Low-Speed-Vehicle (LSV).

- Always operate your VANISH in compliance with your state and local vehicle regulations including registration, titling, insurance, seat belt usage, and operator's licensing.
- Only licensed drivers 16 years or older are to drive and operate the VANISH.
- Obey all traffic laws.
- Always fasten your seat belts.
- Never ride alone. Always drive within the sight of another rider.
- Always drive your VANISH while sitting down. Keep both hands on the steering wheel and keep both feet on the floor boards.
- Don't ride your VANISH over railroad tracks. Your VANISH makes noise that will keep you from hearing cars, trucks or trains that may be coming towards you.
- Learn where there are lakes, rivers, ponds and ditches in your driving area and stay away from them.
- Never ride on frozen water. The ice could cause an accident resulting in severe injury or death. All ice can be dangerous.
- Always be alert and pay attention to where you are driving. Pay attention to other drivers and be even more careful around them because you don't know what they're going to do.
- Never follow another vehicle too closely. Always allow plenty of time and space to stop your VANISH.
- Safety warning signs may appear shocking at first glance. Safety warnings are there to remind you to avoid serious accidents and personal injury.

POTENTIAL HAZARDS

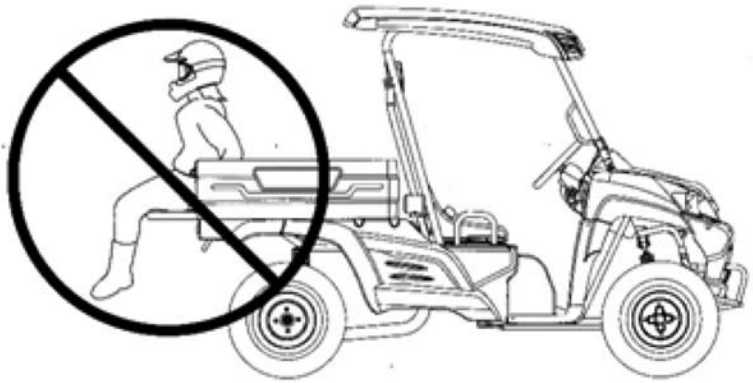
⚠ WARNING

POTENTIAL HAZARD
Operating this VANISH without proper instruction.

WHAT CAN HAPPEN
The risk of an accident with severe injury or death is greatly increased if the operator does know not how to operate the VANISH properly in different situations and on different types of terrain.

HOW TO AVOID THE HAZARD
Educate yourself using this manual and learn the terrain on which you intend to ride.

⚠ WARNING



POTENTIAL HAZARD
Carrying a passenger in the cargo bed, unless in factory authorized seating at designated speeds.

WHAT CAN HAPPEN
A passenger riding in the cargo bed could be ejected from the vehicle unexpectedly or may contact moving components, both of which can result in severe injury or death.

HOW TO AVOID THE HAZARD
Never allow passengers to ride in the cargo bed, unless in factory authorized seating, at designated speeds.

POTENTIAL HAZARD
Operating this VANISH in rough terrain without wearing an approved helmet, eye protection and protective clothing.

WHAT CAN HAPPEN
Operating without an Approved helmet increases your chances of severe head injury or death in event of an accident. Operating without eye protection can result in severe injury in event of an accident.

HOW TO AVOID THE HAZARD
Always wear an approved helmet that fits properly when operating in rough terrain. You should also wear eye protection (goggles or face shield), gloves, long-sleeved shirt or jacket, and long pants.

POTENTIAL HAZARD
Operating this VANISH after consumption of alcohol or drugs.

WHAT CAN HAPPEN
- Could seriously affect your judgment.

- Could cause you to react more slowly.
- Could affect your balance and perception.
- Could cause an accident resulting in severe injury or death.

HOW TO AVOID THE HAZARD
NEVER consume alcohol or drugs before or while driving the VANISH or any other vehicle.

POTENTIAL HAZARD
Operating this VANISH at excessive speeds.

WHAT CAN HAPPEN
Increases your chances of losing control of the VANISH, which can cause an accident, resulting in severe injury or death.

HOW TO AVOID THE HAZARD
Always travel at a proper speed for the terrain, visibility, operating conditions, and your experience.

POTENTIAL HAZARD
Attempting wheelies, jumps and other stunts.

WHAT CAN HAPPEN
Increases the chance of rolling the vehicle and/or causing an accident resulting in severe injury or death.

HOW TO AVOID THE HAZARD
Never attempt stunts, such as wheelies or jumps.

⚠ WARNING

POTENTIAL HAZARD
Failure to inspect the VANISH before operating. Failure to properly maintain the VANISH.

WHAT CAN HAPPEN
Increased possibility of an accident or equipment damage. Could cause an accident resulting in severe injury or death.

HOW TO AVOID THE HAZARD
Always inspect your VANISH each time you use it to make sure the VANISH is in safe operating condition. Always follow the inspection and maintenance procedures and schedules described in the Owner's Manual.

⚠ WARNING

POTENTIAL HAZARD
Failure to use extra care when operating this VANISH on unfamiliar terrain.

WHAT CAN HAPPEN
You can come upon hidden rocks, bumps, or holes, without enough time to react. This could result in the VANISH rolling or driver losing control of the vehicle and causing an accident resulting in severe injury or death.

HOW TO AVOID THE HAZARD
Go slowly and be extra careful when operating on unfamiliar terrain. Always be alert to changing conditions when operating the VANISH.

⚠ WARNING

POTENTIAL HAZARD
Failure to use extra care when operating on excessively rough, slippery or loose terrain.

WHAT CAN HAPPEN
Could cause damage to terrain, loss of vehicle control, rolling the vehicle, or causing an accident resulting in severe injury or death.

HOW TO AVOID HAZARD

- Do not operate on excessively rough, slippery or loose terrain until you have learned and practiced the skills necessary to control the VANISH on such terrain.
- Always be especially cautious on rough terrain.

⚠ WARNING

POTENTIAL HAZARD
Turning improperly.

WHAT CAN HAPPEN
Driver could lose control of the VANISH, rolling the vehicle or causing an accident resulting in severe injury or death.

HOW TO AVOID THE HAZARD

- Always follow proper procedures for turning.
- Practice turning at low speeds before attempting to turn at faster speeds.
- Do not turn at excessive speed.

⚠ WARNING

POTENTIAL HAZARD
Climbing hills improperly.

WHAT CAN HAPPEN
Could cause loss of control, cause VANISH to overturn, or cause an accident resulting in severe injury or death.

HOW TO AVOID THE HAZARD

- Always follow proper procedures for climbing hills.
- Always check the terrain carefully before you start up any hill.
- Never climb hills with excessively slippery or loose surfaces.
- Never depress the accelerator suddenly. The VANISH could flip over backwards.
- Never go over the top of any hill at high speed. An obstacle, sharp drop, or another vehicle or person could be on the other side of the hill.

⚠ WARNING

POTENTIAL HAZARD
Going down a hill improperly.

WHAT CAN HAPPEN
Could cause loss of control or cause VANISH to overturn causing an accident resulting in severe injury or death.

HOW TO AVOID THE HAZARD

- Always follow proper procedures for going down hills as described in the Owner's Manual.
- Always check the terrain carefully before you start down any hill. Never go down a hill at high speed.

- Avoid going down a hill at an angle that could cause the vehicle to lean sharply to one side.
- Go straight down the hill where possible.

⚠ WARNING

POTENTIAL HAZARD
Improperly crossing hills or turning on hills.

WHAT CAN HAPPEN
Could cause loss of control, VANISH to roll, or cause an accident resulting in severe injury or death.

HOW TO AVOID THE HAZARD
Avoid hills with excessively slippery or loose surfaces.
Never attempt to turn the VANISH around on any hill until you have mastered the turning technique on level ground. (Practice turning at low speeds on level ground before attempting to turn at faster speeds. Do not turn at excessive speeds.)
Avoid crossing the side of a steep hill if possible.

⚠ WARNING

POTENTIAL HAZARD
Skidding or sliding.

WHAT CAN HAPPEN
You may lose control of the VANISH. You may also regain traction unexpectedly; both of which may allow the VANISH to overturn causing an accident resulting in severe injury or death.

HOW TO AVOID THE HAZARD
On slippery surfaces, such as ice, go slowly and be very cautious in order to reduce the chance of skidding or sliding out of control.

⚠ WARNING

POTENTIAL HAZARD
Improperly operating over obstacles.

WHAT CAN HAPPEN
Could cause loss of control or a collision. Could cause the VANISH to overturn.

HOW TO AVOID THE HAZARD

- Before operating in a new area, check for obstacles.
- Never attempt to ride over large obstacles such as large rocks or fallen trees.
- If you cannot avoid obstacles, use extreme caution when riding over obstacles.

⚠ WARNING

POTENTIAL HAZARD
Riding on frozen lakes and rivers.

WHAT CAN HAPPEN
Severe injury or death can result if the VANISH and/or the operator break through the ice.

HOW TO AVOID THE HAZARD
Never ride your VANISH on a frozen body of water.

⚠ WARNING

POTENTIAL HAZARD
Operating this VANISH through deep (more than 12”) or fast flowing water.

WHAT CAN HAPPEN
Loss of traction and loss of control, which could lead to an accident resulting in severe injury or death.

HOW TO AVOID THE HAZARD

- Avoid operating the VANISH through deep or fast flowing water. If you cannot avoid water which exceeds the recommended maximum depth, go slowly, balance your weight carefully avoiding sudden movement, maintain a slow and steady forward motion, do not make sudden turns or stops, and do not make sudden accelerator changes.
- Remember that wet brakes have reduced stopping ability. Test your brakes after leaving water. If necessary, apply them several times to let friction dry out the pads.

POTENTIAL HAZARD
Operating this VANISH with incorrect size tires, rating or with uneven tire pressure.

WHAT CAN HAPPEN
Using incorrect size or rating tires on this VANISH, or operation of this VANISH with uneven tire pressure, may cause loss of control and increases the risk of an accident resulting in severe injury or death.

HOW TO AVOID THE HAZARD

- Always use the size and type tires specified in the Owner's Manual for this vehicle.
- Always maintain proper tire pressure as described in the Owner's Manual.

⚠ WARNING

POTENTIAL HAZARD
Overloading this VANISH.

WHAT CAN HAPPEN
Could cause changes in vehicle handling that could lead to an accident resulting in severe injury or death.

HOW TO AVOID THE HAZARD

- Never exceed the stated load capacity for this VANISH.
- Cargo should be properly distributed and securely attached.
- Reduce speed.
- Allow greater distance for braking.

⚠ WARNING

POTENTIAL HAZARD
Operating this VANISH with improper modifications.

WHAT CAN HAPPEN
Improper installation of non-OEM accessories or modification of this vehicle may cause changes in handling which, in some situations, could lead to an accident.

HOW TO AVOID THE HAZARD
Never modify this VANISH through improper installation or use of non-OEM accessories.

GENERAL OPERATOR SAFETY

- Do not carry a passenger until you have at least two hours of driving experience with this vehicle.
- Always keep arms and legs inside the cab frame while the vehicle is in motion.
- Always use occupant restraints such as seat belts and leg restraint webs.

STALLING WHILE CLIMBING A HILL

Stalling or rolling backwards while climbing a hill could cause an overturn. Always maintain a steady speed when climbing a hill.

If all forward speed is lost:

- Apply the brakes.
- Switch to reverse and slowly allow the vehicle to roll straight downhill while applying light brake pressure to control speed.

If you begin rolling downhill:

- Never press the accelerator.
- Apply the brakes gradually until the vehicle is fully stopped.
- Switch to reverse and slowly allow the vehicle to roll straight downhill while applying light brake pressure to control speed.

IMPROPER HILL CLIMBING

Climbing hills improperly can cause loss of control or vehicle overturn. Always follow proper procedures for climbing hills as described in the owner's manual.

DESCENDING HILLS IMPROPERLY

Improperly descending a hill could cause loss of control or overturn. Always follow proper procedures for traveling down hills as described in the owner's manual.

- Use the brake pedal to control speed when descending a hill. Never travel down a hill at high speed.
- Always descend a hill with the direction selector on FORWARD. Never descend a hill in neutral.
- Always check the terrain carefully before descending a hill.
- Avoid traveling down a hill at an angle, which would cause the vehicle to lean sharply to one side. Travel straight downhill.

UNAUTHORIZED USE OF THE VEHICLE

Leaving the keys in the vehicle can lead to unauthorized use of the vehicle, which could result in an accident or overturn. Always remove the key when the vehicle is not in use.

HOT DRIVE SYSTEMS

The motor and controller are very hot during and after use of the vehicle. Hot components can cause burns and fire. Do not touch hot drive system components. Always keep combustible materials away from the drive system.

** Should an accident occur, have a qualified service dealer check the entire vehicle including, but not limited to, brakes, accelerator and steering for possible damage.*

** Safe operation of this vehicle requires good judgment and physical skills. Persons with cognitive or physical disabilities who operate this vehicle have an increased risk of overturns and loss of control, which could result in severe injury or death.*

** All parts and accessories added to this vehicle should be designed for use on this VANISH and should be installed and used according to instructions.*

** Switch vehicle to off position, remove key and set parking brake prior to exiting driver's seat.*

** Your VANISH is designed to carry the driver and one passenger. Never carry more than one passenger in this vehicle. Never carry passengers in the cargo bed, unless in factory authorized seating. Follow all warnings and*

precautions.

** Make sure you know where you are going to ride when your VANISH is started. Make sure the area around you and your VANISH is safe.*

** All drivers must have a valid driver's license.*

** Always wear seat belts and use leg restraint nets.*

** Do not carry children on your lap or between the seats.*

** Do not allow anyone to hang onto any part of the vehicle while operating.*

** Obey all traffic regulations.*

** Ensure the passengers can properly operate the safety belts before allowing them to ride.*

** Avoid operating at night because the vehicle may be difficult to see by others. If the vehicle must be operated at night, make sure you use head lamps and tail lamps.*

** Bring the vehicle to a complete stop prior to shifting between FWD/REV. Failure to do so may injure an unsuspecting passenger and/or damage the vehicle.*

** Operate the vehicle from the driver's seat only.*

** To help prevent the risk of serious injury, driver and passenger should keep all body parts inside the vehicle at all times.*

** Avoid sudden and sharp turns.*

** The VANISH is not equipped to carry a child restraint seat. Do not carry a child that cannot properly fit the factory seat belt.*

GENERAL WARNINGS

The following safety procedure should be followed during vehicle operation, maintenance, or repair other special warning signs are described in this manual.

** THE TOMBERLIN VANISH IS EQUIPPED TO OPERATE AT A TOP SPEED OF 25 MPH (40 KPH) AND IS INTENDED FOR USE AS A LOW-SPEED-VEHICLE. NEVER OPERATE THE VEHICLE ON ANY ROAD PUBLIC OR PRIVATE WITH A POSTED SPEED LIMIT ABOVE 35 MPH. WHEN OPERATING VEHICLE ON PUBLIC ROADS THIS VEHICLE OFFERS MUCH LESS CRASH PROTECTION THAN A REGULAR CAR, VAN, OR TRUCK. THIS MEANS A HIGHER RISK OF INJURY OR DEATH IN COLLISIONS, EVEN AT LOW SPEEDS. THE HIGHER THE SPEED OF THE TRAFFIC AROUND YOU, THE HIGHER THE RISK OF INJURY.*

To reduce these risks:

- Obey all traffic regulations.
- Avoid roads with regular traffic, even if the speed limit is low.
- Whenever possible, stay on roads and lanes limited to low speed vehicles.

** THIS PRODUCT CONTAINS OR EMITS CHEMICALS OR SUBSTANCES THAT HAVE BEEN DETERMINED BY THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.*

⚠ DANGER

** The VANISH contains batteries which can emit quantities of explosive gases. Keep the vehicle in a well ventilated area and away from sparks and open flames.*

** Ventilate when charging or operating the vehicle in enclosed areas.*

** Do not perform service or maintenance on batteries while vehicle is charging.*

** The VANISH does not offer protection from lightning, flying debris, or other storm hazards. Upon indication of severe weather conditions, seek appropriate shelter immediately.*

⚠ WARNING

** Only authorized mechanics should perform maintenance or repair on the VANISH. It is required to abide by all regulations and safety decals on the vehicle while performing any type of maintenance or repairs.*

** Use only insulated tools to handle the battery pack and electrical components. Remove all jewelry and loose items before performing maintenance procedures.*

** Improper application or maintenance will lead to deterioration of vehicle performance and reduce the overall life of the vehicle.*

** Do not attempt to alter the vehicle in any manner which would affect stability, control, or top speed. Such alterations may lead to serious injury or death, violate State and Local laws, and will void the manufacturer's warranty.*

** Failure to follow the warnings contained in this manual can result in severe injury or death.*

** A Tomberlin VANISH is not a toy and can be hazardous to operate. This vehicle handles differently than other vehicles. A collision or rollover can occur quickly, even during routine maneuvers like turning, or driving on hills or over obstacles, if you fail to take proper precautions.*

** Keep this manual with the vehicle. No person under the age of 12 may ride as a passenger in this vehicle. Any passenger must be able to comfortably reach the floor and hand holds.*

** The VANISH is not equipped to carry a child restraint seat. Do not carry a child that cannot properly fit the factory seat belt.*

BATTERY COMPARTMENT WARNING

** Sulfuric acid in batteries will burn skin, eyes, and clothing. Do not tip batteries. Keep vent caps tight and level. In event of injury, flush with water and call physician immediately.*

** High voltage cables and terminals are contained within this compartment. Improper contact between battery terminals can result in electrical shorts.*

** Electrical shorts can result in burns or a battery explosion.*

** Do not use high pressure water to wash the battery compartment otherwise damage to the vented batteries will occur.*

** Tampering with or unauthorized modification of this unit could result in serious personal injury, void the warranty, and can result in permanent damage to the vehicle.*

** Refer to your owner's manual or contact your local Tomberlin dealer with any questions.*

** If working on components within the battery compartments only use properly insulated tools.*

BATTERY CHARGING WARNING

** Explosive gases are released when batteries are charged. Keep sparks, flames and cigarettes away. Shield eyes when working near batteries.*

** Do not charge batteries in a non-ventilated enclosed area or near flammable materials.*

** Do not attempt to charge frozen, leaking, or damaged batteries.*

** Connect battery charger to properly rated electrical receptacle with GFCI.*

** Do not charge with storage or weather cover on vehicle or with the cab enclosure doors closed, as fire and explosion are possible.*

** Refer to Owner's Manual or contact your local Tomberlin dealer with any questions.*

BATTERY CAUTION

** Batteries require regular maintenance.*

** Failure to maintain batteries in accordance with the owner's manual can result in battery damage, vehicle malfunction, fire and/or severe injury or death.*

RIDING GEAR: RECOMMENDATIONS

VANISH riding in rough terrain requires special protective clothing and equipment to help reduce chances of injury.

- Helmet – Your helmet is the most important piece of protective gear for safe riding. A helmet can prevent severe head injury.

Make sure your helmet meets or exceeds your state's safety standards and bears either the Department of Transportation (DOT) label, the American National Standards Institute label (ANSI z90.1), or the Snell Memorial Foundation label.

- Eye Protection – Do not depend on sunglasses or the windshield for eye protection. A pair of goggles or helmet face shield offers the best protection for your eyes. They should be shatterproof and should be kept clean. Check for one of these marks to be sure your choice of eye protection is of shatterproof design: z2.1 or VESC8.

- Clothing – To protect your body, long sleeves and pants should always be worn. It is also suggested that your footwear should be ankle or higher boots.

PRECAUTIONS DURING MAINTENANCE

Always disconnect the main power connector before servicing or unplugging any electrical components.
Always follow all safety instructions in the maintenance portion of this owner's manual, as well as the following:

- Make sure the vehicle is properly immobilized before beginning any maintenance.
- Always block the chassis securely before working under the vehicle.
- Turn the key off and remove it from the vehicle.
- Insulate any tools used within the battery area to

prevent sparks or battery explosion caused by shorting the battery terminals or wiring. Remove the batteries, or cover the exposed terminals with an insulating material.

⚠ WARNING

** Do not ride this vehicle without batteries properly installed. Driving VANISH without batteries properly installed may cause short-circuit and result in shorting out electrical system causing a fire, resulting in severe injury or death.*

⚠ CAUTION

** Neither the glove compartment nor under hood storage is waterproof.*

** To prevent damage, latch hood securely when operating vehicle.*

⚠ WARNING

- Always operate the vehicle with seat belts properly fastened.
- Make sure the seat belts are latched securely and are free from twists or kinks.
- Position the shoulder belt across the top of the shoulder. Wear the shoulder belt across chest, not under both arms.
- Loose fitting safety belts significantly reduce protection. Keep belts snug and positioned low on the hips.
- Do not exceed the recommend number of occupants for

the vehicle; Maximum occupants on the single bench VANISH: Two

- Inspect the safety belt webbing and hardware periodically. Check for cuts, frays or loose parts. Replace components if excessive wear or damage is noticed.
- Keep safety belts clean and dry. To clean, use mild soap and warm water. Do not use bleach, dye or abrasive cleaners as this will weaken the belt webbing material.
- Do not insert any foreign objects into the retractor mechanism. Periodically check for smooth operation and replace if the mechanism is not operating properly.

** This VANISH must be inspected each time before riding to insure it is in proper working order. If proper inspection is not performed, severe injury or death could result.*

** Always use leg restrain webbing.*

** If you have a malfunctioning accelerator pedal, do not drive. You could get hurt if you ride when you have a sticky accelerator pedal. Have your local Tomberlin dealer fix the accelerator.*

Make sure the accelerator pedal doesn't stick. Check this by pushing the accelerator pedal and then let it go. If it comes right back to where it was before you pushed it then it's okay. If it comes back slowly or stays forward, you have a sticky accelerator. This means that something is wrong or broken.

** If you have malfunctioning brakes, do not drive. You could get hurt if you ride when you have malfunctioning brakes. Have your local Tomberlin dealer fix the sticky brakes.*

Operating the vehicle while the parking brake is engaged could cause an accident resulting in serious injury or death. It could also result in driveline or motor damage. Always be sure to disengage the parking brake before operating the vehicle.

** Do not attempt to shift the transmission while the vehicle is moving or while operating on hilly terrain.*

** Always place the transmission in gear with the parking brake locked whenever the vehicle is left unattended.*

** If your VANISH is stored/operated in salt-water areas, it must be rinsed with fresh water to prevent corrosion that can be caused by seawater.*

⚠ WARNING

** Changing the drive mode switch position while driving could result in an automatic increase or decrease in speed without a change to accelerator pedal pressure.*

⚠ DANGER

** Reduce speed and allow greater distance for braking when carrying cargo.*

** All loads must be secured before moving vehicle. Unsecured loads can create unstable operating conditions, which could result in loss of control of the vehicle.*

** Loads must be carried as low as possible. Carrying high loads raises the center of gravity of the vehicle and creates a less stable operating condition. When cargo loads are carried high, the weight of the loads must be reduced to maintain stable operating conditions.*

** Operate only with stable and safely arranged loads. When handling off-centered loads which cannot be centered, securely fasten load and operate with extra caution.*

** Do not travel faster than the recommended speeds.*

** Do not operate this VANISH on hilly terrain. If you cannot avoid operating in hilly terrain, use extreme caution. Braking and handling are greatly affected. Loss of vehicle control or overturning of the VANISH could result causing sever injury or death.*

** Do not travel at excessive speeds. It is dangerous and can cause loss of vehicle control and tipping, resulting in severe injury or death.*

TRAIL OBSTACLES

** KEEP ALERT. Look ahead and learn to read the trail as you ride. Stay on the right side of the trail, if possible, and be constantly alert for hazards such as logs, rocks, and low-hanging branches.*

** Not all obstacles are visible. Travel with caution on trails. Severe injury or death can result if your VANISH comes in contact with hidden obstacles.*

⚠ DANGER

Do not use the charger if:

* *The plug is loose or does not make good contact.*

* *The plug or wires get hot.*

* *The connector pins are bent or corroded.*

* *The plug, receptacle, or connector is damaged in any way.*

* *Using the charger with any of the above issues could result in a fire or personal injury.*

⚠ WARNING

* *Inspect cords and connections for cracks or fraying. Replace if any problems are found. Make sure all connectors are clean and dry.*

* *Do not pull on the charger wires.*

* *With the charger properly plugged into the AC outlet. The charger will read the battery condition and activate within two to ten seconds. The charger indicative light will display one by one and then returns to charging state .*

* *Note: The charger is built into the vehicle. Due to the heat caused when charging, the cargo box should be raised when charging in hot weather conditions.*

* *The charger will automatically apply sufficient power to bring the VANISH's batteries to full charge. It will also automatically shut itself off when they are fully charged. If left connected, the charger will occasionally check the*

batteries' condition and apply enough power to maintain a full charge.

** It is recommended to plug the charger in even after short trips (10 minutes). This will assist in getting the maximum life from your VANISH batteries.*

** Batteries emit hydrogen which is an explosive gas. While charging, keep vehicle in well ventilated areas.*

** Do not cover the vehicle while charging as an accumulation of hydrogen gas could result in an explosion.*

** Do not attempt to service the charger. If the charger requires service, take it to an authorized Tomberlin Dealer or approved technician.*

** Do not overload the AC circuit. The voltage of the charger should be between 110-130 volt and the current should be 15-18 Amp.*

⚠ DANGER

** Do not smoke or expose sparks or open flames near the vehicle.*

** The electrolyte in the batteries is highly acidic and poisonous.*

** Avoid contact with skin, eyes, and clothing. Severe burning and scaring may result.*

- Remedial measures in case of contact with battery acid:
- External: Flush with water for 15 minutes. Call physician immediately.
- Internal: Drink large quantities of milk or water followed with milk of magnesia or vegetable oil, call physician immediately.
- Eyes: Flush with water for 15 minutes. Call physician immediately.

⚠ WARNING

- Wear safety glasses while working on the vehicle or charger. Wear a full face shield and rubber gloves while working on or near the batteries.
- Use insulated tools while working on any electrical components.

⚠ CAUTION

Turn the vehicle and all accessories off while charging. The eight 6-volt batteries in this vehicle are specifically designed deepcycle batteries. Automotive batteries should never be used in this vehicle. The same type and size lead-acid batteries should be used if replacements are necessary. Alternative batteries such as sealed batteries and absorbed glass mat

batteries will require a different charging program and should not be used.

It is important to properly condition new batteries. New batteries will take 20 to 50 charges to reach their full potential. During this period it is important not to exceed a 50% discharge level. Batteries should be fully charged before first use of vehicle, before removal from storage, and before use each day. Charge batteries whenever possible; avoid deep discharging of batteries as it will shorten their life.

Batteries contain high current. Do not overfill or allow water to stand on top of the batteries. Doing so could result in personal injury and or property damage. Use distilled water, do not use well water.

If the battery wires or terminals are damaged or corroded, they should be replaced or cleaned. Failure to do so may cause them to overheat during operation.

> * *Components such as the motor, controller, and resistor may become hot during operation. To avoid burns, allow these components time to cool before performing service on the vehicle.*

Never operate your VANISH if the brake pedal does not feel firm or extends more than half way to the floor. Immediately stop operation if your vehicle pulls severely to one side while braking. Do not continue operation.

** Do not attempt to adjust the tie rod for toe alignment. Severe injury or death can result from improper adjustment. Contact your local Tomberlin dealer. They have the training and tools to make adjustments.*

** VANISH tires can become distorted by over-inflation. (Ballooning, stretching of rubber and fiber cords).*

** Once a tire has been over-inflated it will not return to its original size.*

** Operating your VANISH with worn tires, improperly inflated tires, non-standard tires or improperly installed tires will affect vehicle handling which could cause an accident resulting in serious injury or death.*

** Do not attempt to charge frozen batteries or batteries with bulged cases. Discard the battery. Frozen batteries can explode.*

** Only a qualified technician should repair or inspect the vehicle. It is important to abide by all procedures described in this manual and all safety signs such as “Danger”, “Warning”, or “Caution”.*

** If a problem is found during routine maintenance or inspection, do not operate the vehicle until the problem has been repaired.*

** When parking on an incline, set the key switch to Off and the FWD/REV switch to Neutral, set the park brake. Use blocks to secure the wheels.*

Always follow these precautions when hauling cargo:

- Never exceed the maximum weight capacity of the vehicle. When determining the weight you are adding to the vehicle, include the weight of the operator, passenger, accessories, loads in the rack or box and the load on the trailer tongue. The combined weight of these items must not exceed the maximum weight capacity of 1000 lbs.

** If the weight distribution on the box is located toward the rear of the box when the release lever is pulled upward, the box may dump unexpectedly and cause serious injury to the operator or bystanders.*

** Never operate the dump lever without ensuring that the load is positioned evenly or at the front of the box.*

** Operating the vehicle while the cargo box is raised could result in severe injury. The box could close unexpectedly and cause injury to the driver or passenger. The rear tires will also catch the rear of a raised box, damaging the vehicle and creating hazardous driving conditions. Never operate this vehicle with the cargo box in the raised position.*

⚠ WARNING

** Do not tow behind an automobile or truck on any public roads. To tow the vehicle on public roads, use a trailer with a minimum load rating of 2,000 lbs.*

FOR MORE INFORMATION ABOUT SAFETY

call Tomberlin at 1-888-400-0790

FEATURES & CONTROLS

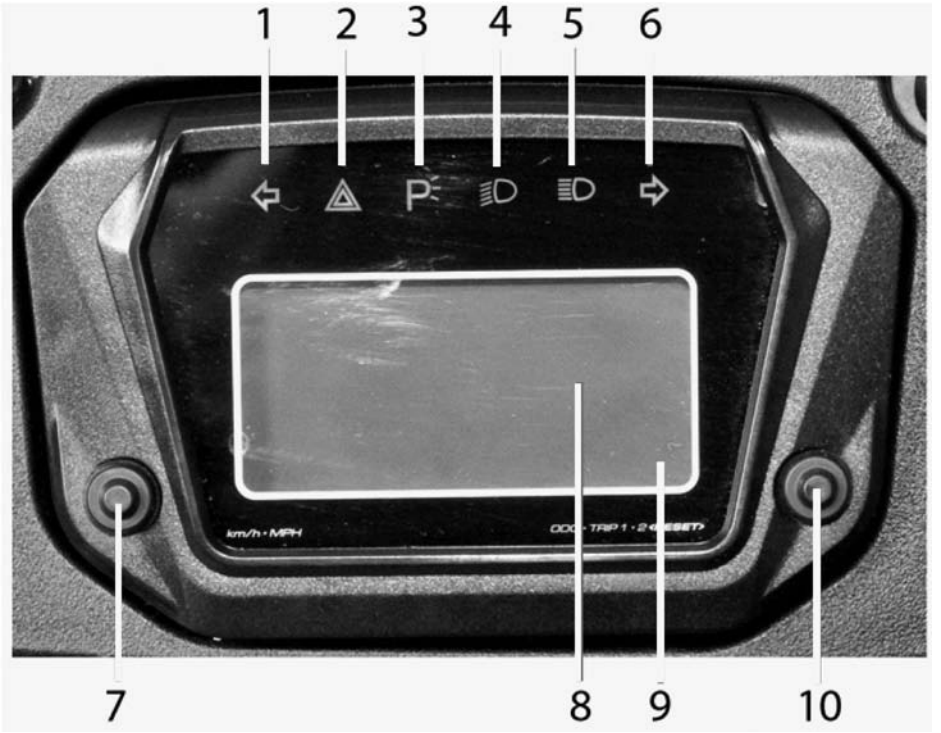
It is imperative that all operators of the VANISH be familiar with the controls prior to operation.

To avoid unintentional acceleration and vehicle damage, do not turn the direction selector switch (forward/reverse) until the vehicle has come to a complete stop.

CONSOLE OVERVIEW

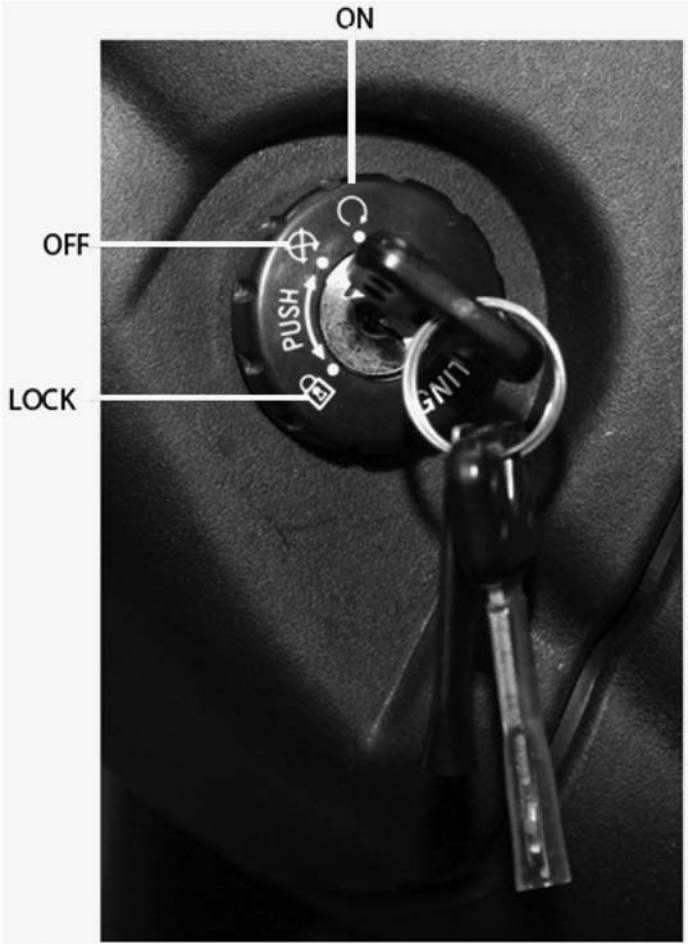
1. 12V Power Outlet
2. Power Selector (M = Max Range, H = High, L = Low)
3. Low/High Headlight Switch
4. LCD Digital Gauge (includes Speedometer and Odometer)
5. Headlight Switch
6. Hazard Light
7. 4WD/2WD Selector Switch
8. Direction Selector Switch (F = Forward, N = Neutral, R = Reverse)
9. Scout Mode Switch
10. Transmission Gear Shift Lever (L = Low, H = High, N = Neutral)

LCD DIGITAL DISPLAY



1. Left Turn Indicator
2. Hazard Indicator - Hazard Light (2), Left Turn Indicator (1), and the right turn Indicator(6) will all flash when Hazard Light is active)
3. Parking Brake Indicator (Illuminated green when Parking Brake is engaged)
4. Headlight LOW Beam Indicator
5. Headlight HIGH Beam Indicator
6. Right Turn Indicator
7. MPH/KPH Toggle Switch
8. Speedometer
9. Odometer / Trip Odometer
10. Trip Toggle/Reset Switch (press once to toggle between trips, press and hold to reset a trip)

KEY SWITCH

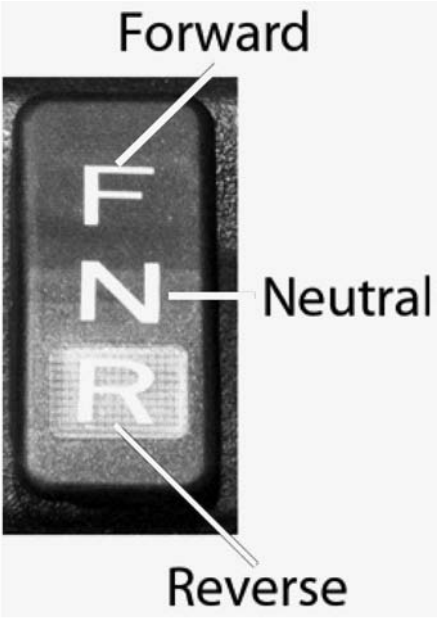


The key switch is located on the right side of steering column and has three positions ON/OFF/LOCK. The key can only be removed in the OFF Position.

TO LOCK STEERING

- Turn key counter clockwise to lock position.
- As pressure is applied to turn key turn steering wheel to engage pin and lock.
- Do not force key or it may break.

DIRECTION SELECTOR SWITCH



The direction selector has three selections (F) Forward, (R) Reverse and a (N) Neutral toggle position located between the (F) and (R) positions.

When the direction selector is in the center position, the vehicle is in neutral. In the neutral position the vehicle will not move if the accelerator is depressed. Place the switch in neutral before turning the key ON. Push the top of the switch to choose Forward operation. Push the bottom of the switch to choose Reverse operation. Always come to a complete stop before reversing direction. When the switch is in the Reverse setting the R will be illuminated.

SCOUT MODE SWITCH

When in Scout mode the vehicle operates quietly and slowly. When the Scout mode is active the switch will illuminate green. Use it in combination with the Low/High Transmission and HML power switch to find the perfect combination of torque, speed, and noise settings for your driving needs.

Scout mode will limit top speed to 2-3 mph in low gear and 5-6 mph in high gear. Perfect for slow controlled vehicle operations.

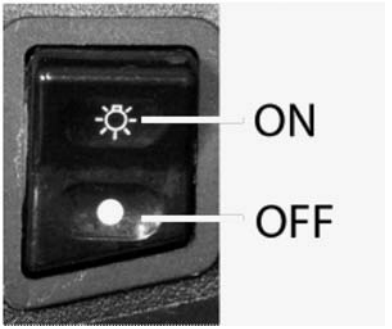
HEADLIGHTS

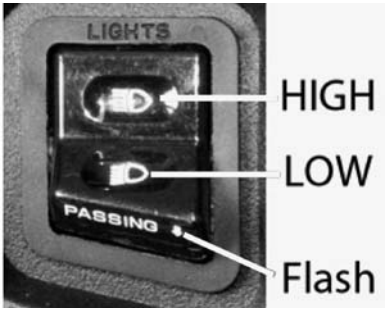
This VANISH is equipped with headlights that have high and low beam settings. The lights will not function unless the key is on. The Headlight ON/OFF Switch is located right of the LCD digital speedometer.

To turn lights on:

1. Turn the key to the ON position.
2. Depress shining bulb side of the headlight switch (the upper side of the Headlight ON/OFF switch).
3. Select High / Low beam by pressing toggle switch on left of the LCD digital speedometer.

- When high beam is active, operator can press low beam momentarily to flash low beam. This can be useful for signaling or getting attention.





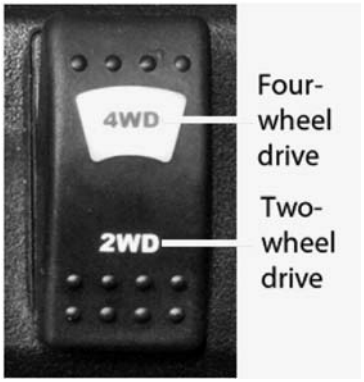
There are also illuminated indicators on the LCD digital gauge. Green = normal beams, Blue = high beams.

High Beam for brighter light

Low Beam for normal light

2WD/4WD SELECTION SWITCH

The 2WD/4WD selection switch is used for changing the manner in which motor power is supplied to the wheels. Select 2WD/4WD according to surface conditions. 4WD provides more traction in slippery conditions. To engage 4WD release accelerator pedal and press 4WD switch to return to 2WD release accelerator pedal and press 2WD switch.

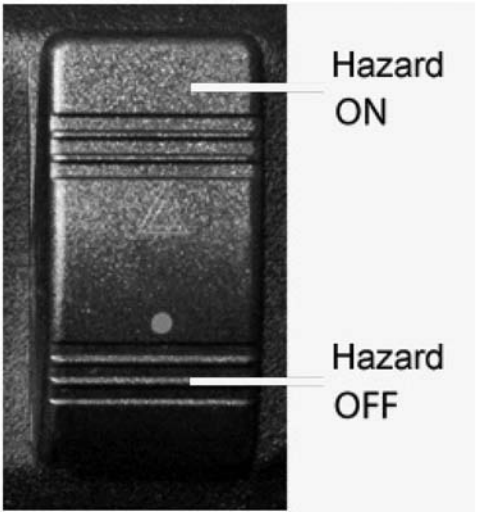


⚠ CAUTION

- Never operate 4WD on pavement or above 15 mph as drivetrain damage may occur.
- Steering effort is increased in 4WD.
- It is normal for front differential to make more noise when in 4WD due to engagement of drive gears.

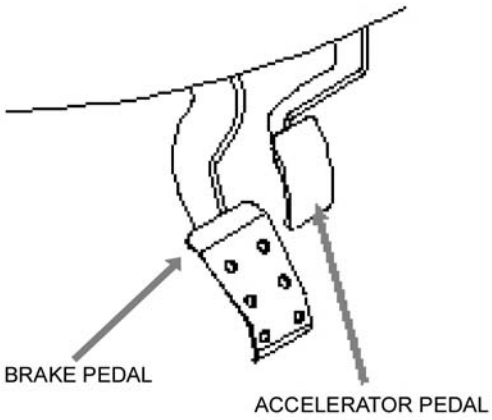
HAZARD LIGHT

The Hazard (emergency) Light causes the left and right turn signals to flash in unison. The LCD indicator light also flashes the red triangle emergency light as well as the turn signals.



BRAKE PEDAL

The brake pedal is the smaller foot pedal located to the left of the larger accelerator pedal. The brake pedal engages all four brakes of the VANISH wheels for shorter stopping distances. To slow the vehicle down, the operator should depress the brake pedal.



Depress the brake pedal to slow or stop the vehicle. Apply the brakes while turning key switch to on.

ACCELERATOR PEDAL

The accelerator pedal is the larger right pedal on the floorboard. Push the pedal down to increase motor speed and to increase vehicle speed. Spring pressure returns the pedal to the rest position when released. Always check that the accelerator pedal returns normally before starting the motor. When depressed, the accelerator pedal will engage the drive motor in the direction the FNR switch is set. If the FNR switch is set to the middle neutral (N) setting the vehicle will not move and the motor will not turn.

- The vehicle will accelerate up to its top speed of 25 mph at which time power will be reduced to the motor.
- If the vehicle speed begins to exceed 25 mph, automatic motor braking will occur.

- When the reverse position is selected, vehicle top speed is reduced.
- Smooth, slow acceleration will substantially increase the vehicle range.

Always remember to disengage the parking brake prior to operating the vehicle. Due to safety interlock the VANISH will not move until the park brake is fully off.

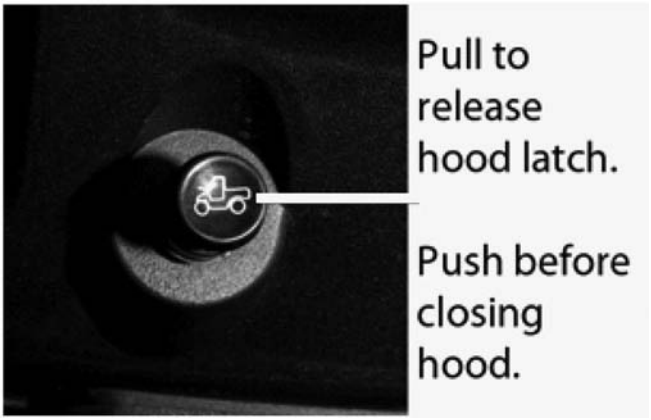
STEERING WHEEL

Check the steering wheel for the specified free play and smooth operation. Park the VANISH on level ground. Lightly turn the steering wheel left and right. There should be 5-15 mm of free play.

1. To turn left, turn the steering wheel to the left.
2. To turn right, turn the steering wheel to the right.

HOOD LATCH KNOB

The VANISH comes equipped with a convenient storage area under the hood. The hood latch knob is located on the underside of transmission gear shifter. To release hood latch pull the release knob. To secure hood, knob must be pushed in before closing lid.



Hood latch is located on underside of dash, near gear shifter.

The provided support rod is useful for propping the hood storage cover open.

TRANSMISSION GEAR SHIFT LEVER

- The transmission gear shift lever is located in the middle of the VANISH dashboard.
- The gear shift lever has three (3) positions: Low, High, and Neutral. There is a button on left side of knob that must be depressed to shift between gears.

To Shift between gears:

“H” ---> “L” Push in shift lever button and move the lever up.

“H” ---> “N” Push in shift lever button and move the lever down.

- DO NOT attempt to shift gears while the vehicle is moving or motor is turning.
- Always place the transmission in gear with the parking brake locked whenever the vehicle is left unattended.
- If you cannot change gears, do not force gear shift lever into gear. Instead, try to change to the Neutral position first, press the accelerator lightly, then try to change gears.

Maintaining shift linkage adjustment is important to assure proper transmission function. Should you experience any shifting problem, see your local TOMBERLIN dealer.

Push left side button to shift.

- In the event the vehicle needs to be pushed or winched, place transmission in neutral “N” to relieve motor braking and permit free rolling.

- Never park vehicle when in neutral ”N” always place in “H” or “L”.

BATTERY DISCHARGE METER

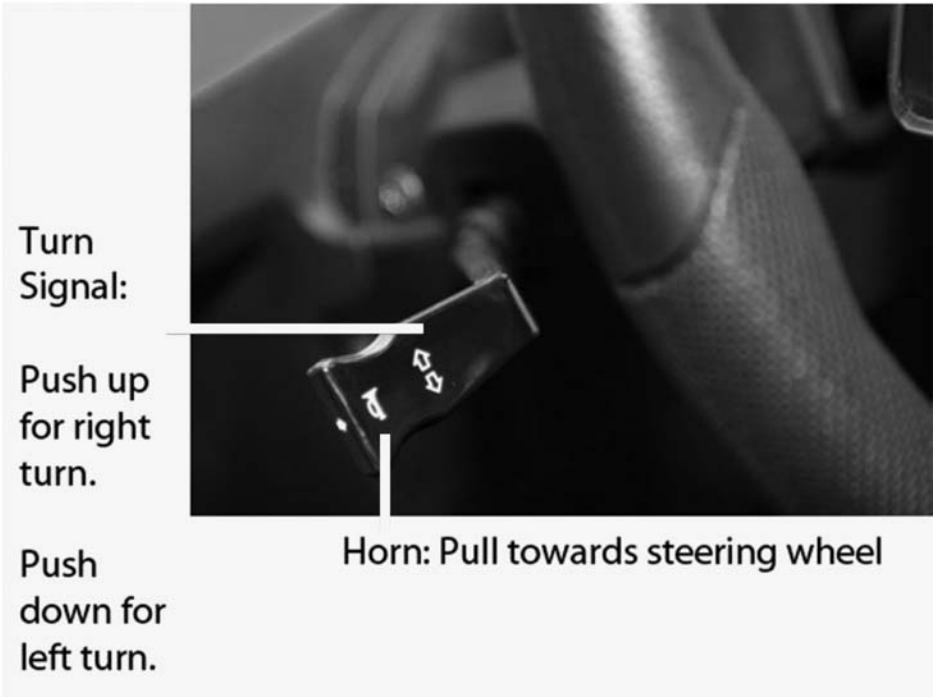
The VANISH is equipped with a Battery Discharge Meter. It functions similarly to a fuel gauge in an automobile. The Battery Discharge Meter is an indicator of the remaining power in the battery pack.
The Battery Discharge Meter has 10 indicator light sections:

- When the upper most section is illuminated, the battery pack contains a full charge.
- When the battery discharge is down by 70% the two remaining lights will flicker as a warning.
- When the vehicle is at 80% discharge reduced performance will occur indicating the immediate need to recharge the batteries. Continued operation beyond this discharge state will result in reduced battery life and possible damage to the batteries.

The batteries’ charge level is shown in one of the ten illuminated sections.

TURN SIGNAL / HORN

A multi-function stalk to the left of the steering wheels controls the turn signal and horn. It functions similar to an automobile for turn signaling. Pushing down on the stalk indicates a left turn, pushing up a right turn. To activate the horn, gently pull the stalk towards the steering wheel.



Turn signal stalk / horn

Note: Stalk will not automatically return to the off position after a turn, the operator should manually move the stalk to the center position upon completing each turn.

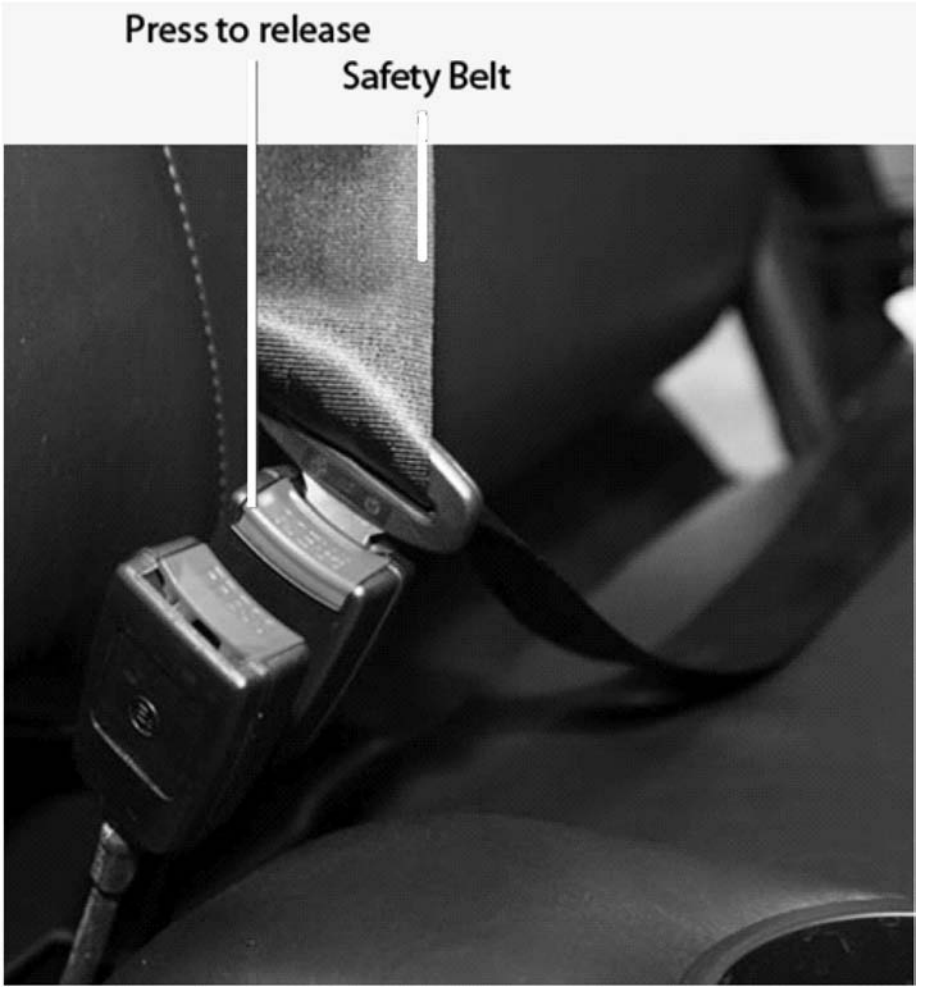
PARKING BRAKE

The parking brake lever is located at the center of the seat extending from the floor. Pull the lever up and to the rear to engage the parking brake.
To release, push in and hold the release button on the end of the lever and push the lever all the way down. Spring pressure helps return the lever to the released position.

- If the Parking Brake is engaged while the key switch is in the On Position, a green (P) light will illuminate above the speedometer and the vehicle will not operate until the parking brake is completely lowered and “P” light goes off.

SAFETY BELT

The VANISH is equipped with safety belts for both the operator and passenger. Always wear the safety belts when operating and riding the vehicle.



Check that the Safety belt functions properly. To properly secure the seat belts, pull the metal tab out away from the retractor and insert tab into buckle located nearest you. A click will be heard when the tab is securely latched. Position the lap belt as low as possible on the hips not the waist. Properly adjust and ensure a snug fit by pulling the shoulder portion upward. The retractor will lock the belt during sudden stops.

It may also lock if the person leans forward too quickly. Slow, easy motions will allow for free travel.
To release the safety belt, press the red buckle release button and allow the belt to retract. If the belt does not retract, check for kinks or twist. Also check the belt webbing for wear, cuts or damage.

The VANISH is not equipped for child safety seats or infant carrying seats. Children under 12 years of age should not be transported in the VANISH.

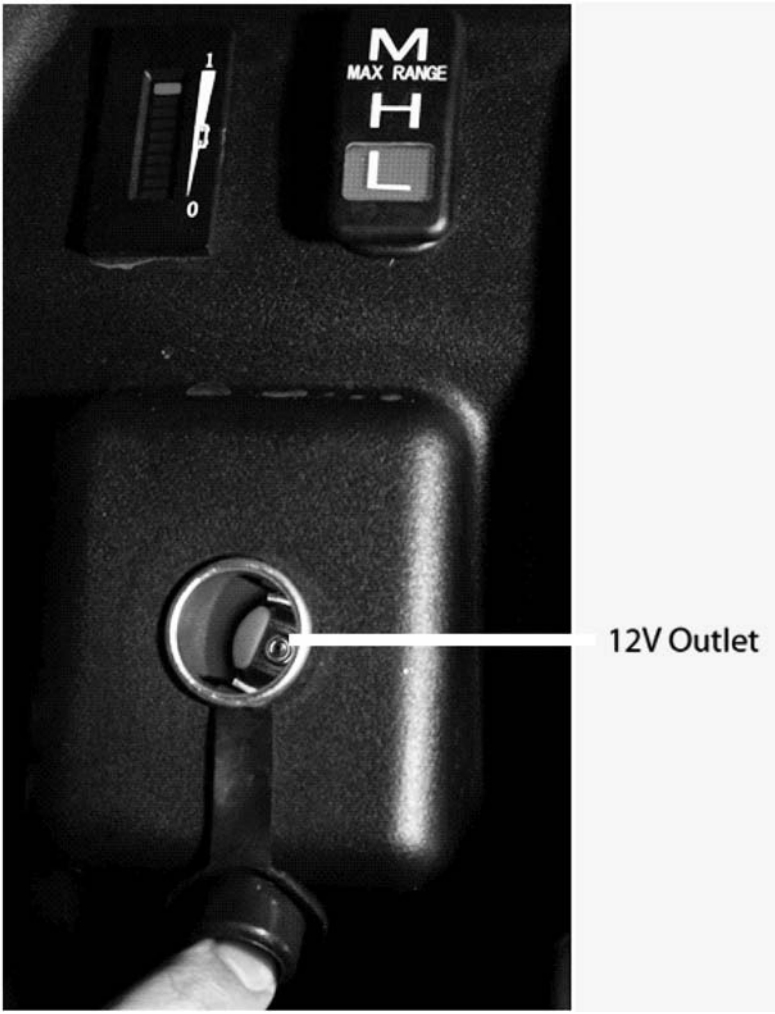
Pregnant, disabled, or injured persons should consult their doctor for specific recommendations before operating or being a passenger in the VANISH.

GLOVE COMPARTMENT (GLOVE BOX)

Lock is located on the glove box door. Insert the key into the key hole, turn the key to right to release the lock and pull door towards seat to open.

12V POWER OUTLET

The VANISH features a 12V power outlet for powering external devices. Replace dust/debris cover when not in use. Maximum rated capacity is 10 amps.



PRE-OPERATING INSPECTION

Before the VANISH is driven you must always perform a Pre-operation inspection.

Each vehicle has been thoroughly inspected by both the manufacturer and dealer. Before the initial operation, it is important that the user inspect the vehicle using the following guidelines:

- General: all parts are securely fastened to the vehicle, no parts are missing, and all screws and nuts are properly tightened. Inspect for any damaged parts or loose bolts or fasteners. Review all warning decals and placement on the vehicle.
- Safety Belts: visually inspect and test for safe operation.
- Tires: check for proper inflation as identified on the vehicle Certification Label.
- Wheels: check for tightness of wheel nuts and axle nuts. Check that axle nuts are secured by cotter pins
- Batteries: check electrolyte level in all cells of each battery. If any cell is low, add distilled water as described in the Battery Care section of this manual. All wires should be free of corrosion. Batteries should be fully charged before first use of vehicle.
- Brakes: check hydraulic fluid level. If it is low, immediately call a qualified mechanic for service. Check free-play and operation of brake pedal; ensure proper brakelight operation; make sure the brake pedal is operating smoothly. It should not go more than half way to the floor when depressed. The vehicle should come to a smooth stop when operating. If excessive or low pedal pressure, pulling to one side, or unusual noise is noticed while braking, have the vehicle serviced immediately.
- Parking Brake: make sure the hand operated parking brake is functioning properly. The parking brake should engage the rear tires when in the up position and allow the vehicle to roll smoothly when in the released

position and transmission is placed in the neutral position.

- Charger cord, plug, and receptacle: inspect for cracks, loose connections, or frays.
- Seat: ensure that the seat is locked back in place and bench cushion locked in place.
- Steering: check to be sure the steering operates freely. Look for any unusual looseness in any area
- Steering: steering should be smooth and consistent with no excessive play in the steering wheel.
- Forward/Reverse Switch: ensure proper operation
- Recommended riding gear: helmet, goggle and proper clothing (long pants, long sleeves, or jacket)
- Reverse Buzzer: the reverse buzzer should sound when the key is in the “ON” position and the direction is set to reverse.
- General: listen for any unusual noises such as squeaks or rattles. Check the vehicle’s ride and performance. Have a certified Tomberlin Dealer or authorized technician investigate anything unusual.

OPERATING INSTRUCTIONS

1. Study and understand the controls.
2. Read the safety decals on the vehicle.
3. Disconnect the battery charger cable if connected.
4. Wear advised gear for protection while operating.
5. Secure the foot restraint nets.
6. Sit in the driver's seat and fasten seat belt.
7. Adjust rear view mirrors to ensure maximum awareness view area.
8. Make sure everyone is seated with seat belts properly fastened.
9. Turn the wheels in the desired direction of motion.
10. Apply the brakes.
11. Place the direction selector in neutral (N).
12. Turn the key to the ON position. Wait about a second for the contractor to close before continuing.
13. Shift lever from N to L or H.
14. Move the direction selector to (F) forward or (R) reverse.
15. Check your surroundings and determine your path of travel.
16. Release Parking Brake.
17. Keeping both hands on the steering wheel, release the brake pedal and gradually push the accelerator toward the floor to begin driving.
18. Drive slowly. Practice maneuvering and using the accelerator and brakes on level surfaces.
19. Do not carry a passenger until you have at least two hours of driving experience with this vehicle. Never carry more than one passenger in this vehicle. Never allow a passenger to ride in the cargo box, unless in a Tomberlin authorized seat kit.
20. Use the brake to stop and limit vehicle speed.
21. To stop the vehicle, release the accelerator pedal completely and brake to a complete stop.
22. Set the park brake.

23. Place the direction selector to neutral
24. Turn the key off.

TRANSMISSION OPERATIONAL INSTRUCTIONS: (NEUTRAL, HIGH, LOW)

- Your VANISH is a high torque UTV and its design provides the operator with a wide range of power and gear inputs to ideally suit most conditions.
- The VANISH is unique as it has a 2 Speed Mechanical Transmission. While it needs no clutch to shift from High to Low Gear the VANISH is designed to require a specific procedure to change the transmission gears.
- The Gear Selector, **N**, **H**, **L** is designed to be shifted only when the Vanish is stopped and the motor is not turning.
- For most conditions High Gear will provide the best range and will traverse most terrain.
- Push the side button to go from High Gear to either Low or Neutral
- It is not necessary to push the button on the side to go into High from Low or Neutral Gear.
- Neutral Gear serves as the Run/Tow Switch that is in a conventional electric vehicle. The Vanish is the only Electric UTV with this Neutral feature and eliminates the need to get off and reach under the vehicle when needed.

SHIFTING FROM HIGH GEAR TO LOW GEAR

- With the high torque available from the motor and transmission combination the Vanish is designed to protect the transmission from damage when shifting to Low Gear.
- Bring the VANISH to a complete stop and ensure the motor is not turning
- Press the side button and push the gear shift lever upwards to Low Gear

- Lightly press the accelerator for the first few feet, if the Vanish goes a few feet and stops then fully release the accelerator pedal momentarily and Low Gear will fully engage and you can apply power and continue on.
- If this occurs the transmission is operating correctly, with the exceptionally high torque at low RPM the transmission shifting mechanism is designed to protect the transmission gears by forcing a restart in Low Gear to ensure full engagement.

POWER MODE SWITCH

(M) Move the switch to the upper position to select the Maximum Range (M) mode. Use this mode to operate the vehicle a greater distance or for a longer time period. This mode limits both speed and torque to obtain the maximum driving range. Use the following table to select the Power and Transmission combination that best suites your terrain and operation goals.

(H) Press the middle position of the switch to select High (H) mode. Use High (H) mode for most on-road conditions. The vehicle will operate at speeds up to 25 MPH (40 km/h).

(L) Press the bottom of the switch to select Low (L) mode. Low (L) mode is recommended for short-term operation in extreme load conditions. Use Low mode when towing, hauling loads or maneuvering over obstacles. Speed will be limited to a maximum of 15 MPH (24 km/h) and regenerative braking increases to improve control in aggressive terrain. Return the mode switch to High mode for normal operation.

			High Gear	Low Gear
	Range	**Power**	**Speed**	
M	Max Range	50%	15 mph	7.5 mph
H	High Speed	75%	25mph	12.5 mph
L	Low	100%	15 mph	7.5 mph

Examples of usage:

- Best Range (M/H) - Fun all day
- Top Speed (H/H) - In a hurry
- Max Torque (L/L) - Climbing obstacles
- Note: Scout mode speeds below 5 mph may not register on speedometer. (May display 0 mph).

The VANISH is the only UTV on the market to have an “S” Scout Speed control feature. Scout mode will govern the speed of the VANISH to a constant 2-3 mph in Low gear and 5-6 mph in High gear. This feature is particularly useful when navigating rough terrain safely and quietly.

Scout Mode, (S), can be engaged at any time. The Switch will be illuminated when engaged.

High Gear	Low Gear
2 - 3 mph	5 - 6 mph

4WD SWITCH

The 4WD switch has two positions: Four Wheel Drive (4WD) and Two Wheel Drive (2WD) Press the top of the switch to engage (4WD). Press the bottom of the switch to revert to (2WD). To engage 4WD release accelerator pedal and press 4WD switch. To return to 2WD release accelerator pedal and press 2WD switch. Never operate 4WD on pavement or above 15 mph as drivetrain damage could occur. Select 2WD/4WD according to surface conditions. 4WD provides more traction in slippery conditions.

In some situations, the front gearcase may remain locked after turning the 4WD switch off. If this occurs, you may notice increased steering effort and some vehicle speed restriction. Perform the following procedure to unlock the front gearcase.

1. Stop the vehicle.
2. Move the direction selector to reverse. Operate in reverse for at least 10 feet (3 m).
3. Stop completely.
4. Move the direction selector to forward and drive forward.
5. If the front gearcase remains locked after following these instructions, return the vehicle to your dealer for service.

⚠ WARNING

** Steering effort is increased when operating in 4WD and use 4WD at low speeds.*

⚠ CAUTION

** Never operate 4WD on pavement or above 15 mph as drivetrain damage may occur.*

BRAKES

OPERATION NOTES

Your VANISH is equipped with 4+Wheel Brakes. There are actually three systems designed to limit your speed:

1. The main pedal braking is done on all four wheels with a hydraulic brake system which includes front wheel disc brakes and rear wheel disc brakes. This system requires periodic maintenance.
2. Inspect for brake pad wear, disc wear and hydraulic fluid loss. Consult your Tomberlin Dealer or qualified Technician if excess wear or if fluid loss is noted. Do not attempt to move the vehicle .
3. The second braking system is a hand operated mechanical parking brake. This hand lever mechanically engages independent rear brakes to keep the car stationary when parked or left unattended. Always engage the parking brake when parking the VANISH or leaving it unattended.
4. The third braking system utilizes the VANISH's electric motor. It will limit your top speed to 25 mph while going downhill by transferring some of the excess energy back into the batteries. It will also engage to slow the vehicle if it starts to roll-away once stopped.
5. Release the accelerator pedal completely. Press on the brake pedal evenly and firmly. Practice starting and stopping (using the brakes) until you're familiar with the controls.

   • Zero Speed Detect: the VANISH's motor will inhibit the vehicle from rolling until the accelerator is depressed. When pushed, motor braking should only allow the

vehicle to travel 1 to 3 mph. When such motion is detected, a beeper will sound.

- Motor Braking: the top speed of the VANISH is limited to 25 mph even while going down an incline. The motor braking will engage to limit the top speed of the vehicle. The motor acts as a generator, transferring some of the excess energy into recharging the batteries.
- Pedal-Up Braking: the VANISH will also apply motor braking while stopping. An extra force may be felt while coming to a complete stop. This indicates a transfer of some of the excess energy back into the batteries.

Rear Park Brake

DISC BRAKE

The VANISH has two disc brakes on front and two on the rear. Check the operation of rear brake pedal and brake function before driving. Be sure to periodically check the brake shoes. If the brake shoe is worn to the wear limit, have a local dealer replace a new brake shoe.
Always test brake lever travel and reservoir fluid level before riding.
Rear brake disk nut toque: 21 ft. lb.

PARKING THE VANISH

- After stopping the VANISH, engage the parking brake by pulling up on the hand lever.
- Turn the key switch off, remove the key, and place the FWD/REV switch in the Neutral position.
- If the vehicle begins to move while parked, motor braking and an alarm should engage.
- If the vehicle begins to move after being parked, safely return to the operating position (if possible) to re-engage the parking brake.

DRIVING CONDITIONS

MAKING TURNS

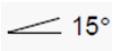
Practice making turns at slow speeds. The TOMBERLIN AUTOMOTIVE GROUP VANISH is equipped with a solid rear axle that drives both rear wheels equally at all times. This means that the wheel on the outside of the turn must travel a greater distance than the inside wheel and the inside tire must slip traction slightly during the turn.

DRIVING ON SLIPPERY SURFACES

1. Slow down when entering slippery areas.
2. Engage 4WD drive before wheels begin to lose traction.
3. Correct a skid by turning in the direction of the skid and shifting your body weight forward.
4. Never apply brakes during a skid. Complete loss of VANISH control can result.
5. Whenever possible, avoid excessively slippery surfaces.
6. Reduce speed, maintain a high level of alertness, reading the trail and avoiding quick, sharp turns, which can cause skids.

DRIVING UPHILL

If you MUST to travel uphill, always travel straight uphill and:

1. Always check the terrain carefully before ascending any hill.
2. Never climb hills with excessively slippery or loose surfaces.
3. Avoid steep hills (15° maximum) . 

4. Keep both feet on the floor.
5. Proceed at a steady rate of speed.

6. Never go over the crest of a hill at high speed. An obstacle, a sharp drop, or another vehicle or person could be on the other side of the hill.
7. If the vehicle stalls while climbing a hill, apply the brakes, stop. Place the direction selector switch in reverse and slowly allow the vehicle to roll straight downhill while applying light brake pressure to control speed.
8. Remain alert and be prepared to take emergency action.

TRAVELING DOWNHILL

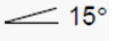
When descending a hill:

1. Drive directly downhill.
2. Slow down.
3. Slightly apply brakes to help in slowing.

SIDE HILL RIDING

Driving on a sidehill is not recommended. Improper procedure could cause loss of control or overturn. Avoid crossing the side of any hill unless absolutely necessary. In the event you do enter into a situation where side hill riding is unavoidable:

1. Slow down.
2. Exercise extreme caution.
3. Steer slightly into the hill to maintain vehicle direction.
4. Avoid crossing the side of a steep hill (15° maximum).



IF THE VEHICLE BEGINS TO TIP, QUICKLY TURN THE FRONT WHEEL DOWNHILL, IF POSSIBLE.

DRIVING THROUGH WATER

1. Determine water depths and currents.
2. Choose a crossing where both banks have gradual inclines.
3. Proceed slowly, avoiding rocks and obstacles if possible.
4. Remember that wet brakes do not always operate normally. After crossing, dry the brakes by applying light pressure to the levers until braking action is normal.
5. Avoid operating through deep or fast-flowing water

After leaving water, always dry the brakes by applying light pressure to the pedal repeatedly until braking action is normal. The VANISH can operate through water up to a maximum recommended depth equal to the floorboards (Approx 12”).

NOTICE: Serious damage can occur to the electrical system and batteries if the vehicle is operated in water deeper than the floorboards.

NOTE: If the VANISH is run through water, it is critical that it is serviced as outlined in the maintenance chart of this manual. These areas need special attention: gear lube and all grease fittings.

DRIVING OVER OBSTACLES

Follow these precautions when operating over obstacles:

1. Always check for obstacles before operating in a new area.
2. Look ahead and learn to read the terrain. Be constantly alert for hazards such as logs, rocks and low hanging branches.
3. Travel slowly and use extra caution when operating on unfamiliar terrain. Not all obstacles are immediately visible.
4. Move the drive mode switch and/or transmission to Low (L) if needed.

DRIVING IN REVERSE

Follow these precautions when operating in reverse:

1. Always check for obstacles or people behind the vehicle. Always inspect left and right fields of vision before backing.
2. Always avoid backing downhill.
3. Back slowly.
4. Apply the brakes lightly for stopping.
5. Avoid turning at sharp angles.
6. Never accelerate suddenly.

PARKING ON AN INCLINE

Avoid parking on an incline if possible. If it's unavoidable, follow these precautions:

1. Apply the brakes.
2. Set the park brake.
3. Place transmission in Low (L).
4. Turn the key off.
5. Block the rear wheels on the downhill side.

HAULING CARGO

The VANISH was designed to haul loads within a limited weight range. Never exceed the weight capacities listed in the specifications table of this Owner's Manual. Cargo weight should be evenly distributed and mounted as low as possible. When operating over rough or hilly terrain, reduce speed and cargo weight to maintain stable driving conditions.

REDUCE SPEED AND ALLOW GREATER DISTANCES FOR BRAKING WHEN HAULING CARGO.

- Always load the cargo box with the load as far forward and as low as possible.
- When operating over rough or hilly terrain, reduce speed and cargo to maintain stable driving conditions.
- Always operate the vehicle with extreme care when hauling or towing loads.
- Slow down and drive in the lowest gear available.
- Secure all loads before operating. Unsecured loads can create unstable operating conditions, which could result in loss of control of the vehicle.
- Operate only with stable and safely arranged loads. When handling off-centered loads that cannot be centered, securely fasten the load and operate with extra caution. Always attach the tow load to the hitch point designated for your vehicle.
- Heavy loads can cause braking and control problems. Use extreme caution when applying brakes with a loaded vehicle. Avoid terrain or situations that may require backing downhill.
- Avoid or use extreme caution when operating with loads that extend over the cargo box sides. Stability and maneuverability may be adversely affected, causing the vehicle to overturn.
- Do not travel faster than the recommended speeds. Vehicle should never exceed 10 mph (16 kph) while towing a load on a level grass surface. Vehicle speed should never exceed 5 mph (8 kph) when towing loads

in rough terrain, while cornering, or while ascending or descending a hill.

TOWING VEHICLE

- To tow the vehicle, turn the ignition switch to the off position and place the FWD/REV switch in neutral. Place the gearbox in neutral (N).
- Release the parking brake.
- Do not exceed 10 mph (16 kph). Drivetrain damage will occur if towed faster than 10 mph (16 kph).
- Use extreme caution while turning.
- Do not allow persons in the vehicle while being towed.
- Avoid stopping on a hill when towing. Do not allow to roll backwards as this may cause the vehicle to overturn.

Do not tow the vehicle behind any type of automobile on public roads unless it is on an approved trailer with a minimum load rating of 2,000 lbs. Towing improperly can alter vehicle handling and may cause loss of control or brake instability.

TOWING A TRAILER

Always follow these precautions when towing loads:

1. Never load more than 150 lbs. (68.1 kg) tongue weight on the towing bracket.
2. Do not operate the vehicle faster than 10 mph (16 km/h) when towing. Towing a trailer increases braking distance.
3. Do not tow more than the recommended weight for the vehicle. See the towing capacity chart below.
4. Attach a trailer to the trailer hitch bracket only. Do not attach a trailer to any other location or you may lose control of the vehicle.
5. Never tow a trailer on a grade steeper than 15°.

Model	Total Towed Load Weight (Level Ground)	Total Towed Load Weight (15° grade)	Total Hitch Vertical Weight	Maximum Towing Speed
VANISH	1500 lbs. (680 kg)	750 lbs. (340 kg)	150 lbs. (68.1 kg)	10 mph (16 kph)

DUMPING THE CARGO BOX (DUMP BED)

1. Select a level site to dump the cargo box. Do not attempt to dump or unload the vehicle while parked on an incline.
2. Apply the brakes.
3. Set the park brake.
4. Place the direction selector in neutral, keep the Gearbox in Low (L) or High (H).
5. Turn the key off.
6. Dismount the vehicle.
7. Ensure that the cargo is positioned evenly or toward the front of the cargo box.
8. Release the tailgate latches.
9. Stand clear and pull up on the dump bed lift handle. The support rod will hold the dump box in place.
10. When ready to lower cargo box back into position, push the dump bed release lever towards the rear to remove support rod. Dump bed will return to half dump or to rest depending on pressure applied to release lever. Be careful not to pinch anything under closing bed.
11. Close the tailgate and secure both tailgate latches.
12. Ensure cargo box is securely latched.

For loading and unloading, the tailgate of the dump box can be opened by releasing the latches on the right/left side.

Maximum Load: 500 lbs. (227kg)

CARGO BOX LATCHES

Open the gate by releasing the latches.

TWO-STAGE DUMP

The dump box has a two stage dump motion.

Stage 1

Stage 2

Stage 1 - Cargo box half-way extended in dump motion

Stage 2 - Cargo box fully extended in dump motion

Support the dump box in the tilted position with the Support Rod provided on the bottom of the bed for motor maintenance and adjustment.

CHARGING THE VANISH/ BATTERIES

The following section will explain how to charge your VANISH and maintain battery life. Please note the following:

- Do not attempt to alter the charger plug in any way.
- Do not use the charger near volatile liquids such as gasoline, paints, thinners, and other flammables. The charger can ignite flammable materials and vapors.
- Do not expose the charger to rain or liquids. Keep the charger dry.
- Do not place anything near the charger cooling vents. Severe electrical shock may occur. Always wear safety goggles or eye protection, rubber gloves, and a mask before handling batteries.
- Locate all cords and wires in locations that will not be driven over or present a tripping hazard.
- When not in use, keep your VANISH plugged into the charger (even during long absences).

Lift cargo box to access batteries.

EXPLANATION

- The charger is computer-controlled and will monitor and maintain your batteries' peak condition.
- The AC side of the charger uses a three prong plug. While charging, use a three prong wall receptacle with a proper ground.

If the charger is left connected to AC power supply, a refresh charge will occur after 10 days if the battery voltage has dropped below a pre-programmed level. If a refresh charge tries to start, but the AC power is disconnected, the charger will wait 8 days for AC to be restored. At this point, the charger will go into sleep mode and a DC disconnect will be required to reset the charger, visit your Tomberlin dealer to reset the charger.

OUTLET AND CORD TYPE

- Use any three-prong 110-240 volt home outlet
- Must have available minimum 15 amps of current

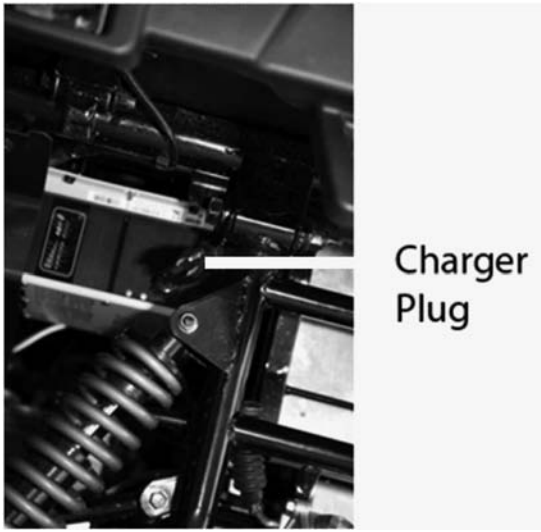
To avoid the risk of electrical shorting, the battery charger must be grounded through a properly installed three prong outlet. Do not use an adapter plug to go from three prongs to a two prong outlet. This will result in an ungrounded condition and increase the risk of electrical shock and/or fire.

1. When using an extension cord, avoid excessive voltage drops by using a grounded, 3-wire, 10-AWG cord no longer than 30m (100').
2. Use the proper cord wire gauges for the cord length used:

Length:	<25 ft. (7.5 m)	<50 ft. (15 m)	<100 ft. (30 m)
Gauge:	16 AWG (1.5 mm2)	14 AWG (2.5 mm2)	10 AWG (6.0 mm2)

AVOID connecting the QuiQ charger and another device to a single 15A/20A circuit or the circuit may become overloaded.

PROCEDURE



Rear view of the unit showing location of charger plug

- Inspect and replace the charger if it has been dropped or damaged in any way. Inspect the cords and connectors for cracks and fraying. If cracks or frays are detected, replace immediately.
- Plug charger into appropriate 3-prong extension cord.
- Watch Charger LED Indicator to verify charging has begun per next section,
- Open the cargo box and any door enclosures or zippers. This will decrease charger temperature, which allows it to operate more efficiently, and shorten charge times. Always use extension cords with the appropriate ratings for the country in which it is used. In North America this is a UL rating. The cords must also be rated for the conditions in which they are used, such as being rated for protection from oil in a garage or workshop environment.

BATTERY CHARGER SAFETY INSTRUCTIONS

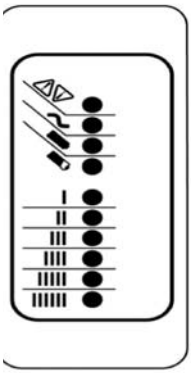
WARNING: Use charger only with an algorithm selected that is appropriate to the specific battery type. Other usage may cause personal injury and damage. Lead acid batteries may generate explosive hydrogen gas during normal operation. Keep sparks, flames, and smoking materials away from batteries. Provide adequate ventilation during charging. Never charge a frozen battery. Study all battery manufactures's specific precautions, ie. maximum charge rates and if cell caps should be removed while charging.

DANGER: Risk of electric shock. Connect charger power cord to an outlet that has been properly installed and grounded in accordance with all local codes and ordinances. A grounded outlet is required to reduce risk of electrical shock - do not use ground adapters or modify plug. Do not touch uninsulated portion of output connector or uninsulated battery terminals. Disconnect AC supply before making or breaking the connections to the battery. Do not open or disassemble charger. Do not operate this charger if the AC supply cord is damaged or if the charger has received a sharp blow, been dropped, or otherwise damged in any way - refer all repair work to the manufacturer, or qualified personnel. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilites, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

OPERATING INSTRUCTIONS

CAUTION: Charger enclosure may be hot during charging. Use hand protection of handling the charger while charging.

1. Extension cords must be 3-wire cord no longer than 30m(100') at 10AWG or 7.5m(25') at 16AWG per UL guidelines.
2. Only connect **ONE** QuiQ charger to a single 15A circuit or the circuit may become overloaded.
3. Charger 10-LED Display:



LED Colour		Indication (following "Power-On Self Test")	
Fault (Red)		**Flashing:**	Charger error. Reset charger power and refer to Troubleshooting Instructions below.
AC On (Amber)		**Solid:**	AC Power good
		Flashing:	Low AC Voltage, check voltage and extension cord length (see above for guidelines).
100% Charge (Green)		**Solid:**	Charging complete. Charger in Maintenance Mode.
		Flashing:	Absorption phase complete. In Finish phase
80% Charge (Amber)		**Solid:**	Bulk charge phase complete, 80% charged. In Absorption phase.
		Flashing:	With no battery connected, indicates algorithm # selected by number of flashes.
Ammeter (Amber)	I II III IIII IIIII IIIIII	**Solid:**	Displays approximate scale of current output during bulk phase.
		Flashing:	High internal charger temperature. Output reduced. Also displays algorithm #1-6 for 11 seconds if no battery is connected.

MAINTENANCE INSTRUCTIONS

1. Do not expose charger to oil, dirt, mud or direct heavy water spray when cleaning vehicle.

2. If the detachable input power supply cord set is damaged, replace with a cord that is:

a:) for North America - UL or CSA listed/approved detachable cord, 3 conductor, 16 AWG minimum, and rated SJT: terminating in a ground type IEC 60320 C 14 plug rated 250V, 13A minimum; or

b:) for all other countries - a safety approved detachable cord, 3 conductor, 1.5mm^2 minimum, rated appropriately for industrial use. The cord set must be terminated on one end

with a grounding type input connector appropriate for use in the country of destination and, on the other end, and output grounding type IEC 60320 C14 plug.

3. The enclosure of the charger has been tested successfully to EN60529, meeting IP66. The AC supply inlet is rated to IP20, which is suitable for indoor use only. Keep all AC connections clean and dry.

TROUBLESHOOTING INSTRUCTIONS

If a fault occurs, count the number of red flashes between pauses and refer to the table below:

Red Flashes	Cause	Solution
	Battery High Voltage	Check battery size and condition and reset charger (interrupt AC power for 15 seconds).
	Battery Low Voltage	Check battery size and condition and reset charger (interrupt AC power for 15 seconds).
	Charge Timeout caused by battery pack not reaching required voltage. Charger output was reduced due to high temperatures	Check connections. Operate charger at a lower ambient temperature.
	Check Battery: battery could not be trickle charged up to minimum voltage	Check for shorted or damaged cells.
	Over-Temperature: Charger shut down due to high internal temperature.	Ensure sufficient cooling air flow and reset charger (interrupt AC power for 15 seconds).
	Charger Internal Fault	Reset charger (interrupt AC power for 15 seconds). Return to qualified service depot if fault persists.

Note: This is a Class A product complying with United States Federal Communications Commission, Code of Federal Regulations; 47CFR part 15. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

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ALGORITHMS

CHECK DEFAULT CHARGE ALGORITHM

Enter Algorithm Display Mode:

1. Disconnect AC Power.
2. Remove positive lead from battery pack.
3. Apply AC Power and the charger will display the algorithm number after the Power On Self Test:
4. All algorithms will display as a series of flashes of the 80% LED.
5. Algorithms #1-6 will also be indicated by the Ammeter LEOs.
6. Algorithm number display repeats for 11 seconds, the Algorithm Display Mode ends.
7. Remove AC Power and reconnect positive lead.

CHANGE DEFAULT CHARGE ALGORITHM

1. Enter Algorithm Display Mode (as above).
2. While Algorithm Number is displayed (for 11 seconds), touch positive lead to the battery pack positive terminal for 3.0 seconds (+/-O. 5s).
3. Remove lead from battery pack, Algorithm Number will increment.
4. To increment the Algorithm Number again, repeat Steps 2 and 3 within 30 seconds.
5. Touch positive lead to positive terminal and hold until relay clicks (>10 seconds). The new default algorithm is now stored.
6. Remove AC Power and check default algorithm (as above).

RETURNING VANISH TO SERVICE

1. Check battery electrolyte levels, add distilled water if necessary.
2. Fully charge the batteries.
3. Adjust the tire pressure to the recommended levels.
4. Perform Pre-Operation Inspection.

If a fault occurs, count the number of red flashes between pauses and refer to the troubleshooting section.

BATTERIES

TO MAXIMIZE BATTERY LIFE

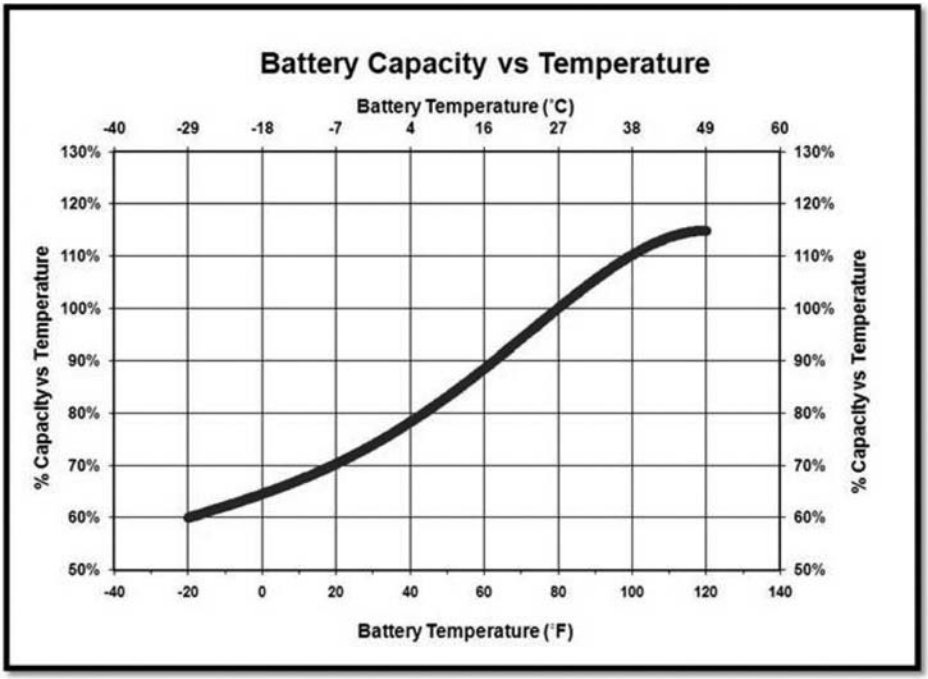
To extend the life of your batteries:

- Keep batteries fully charged whenever possible.
- Avoid deep discharging of batteries whenever possible.
- Check battery electrolyte levels often, add distilled water as necessary.
- Always check and maintain water level monthly. Use only distilled water. Water level should be kept 1/4” (6 mm) below fill well. Do not overfill the battery.
- Always keep batteries fully charged. For maximum life, charge your vehicle at every opportunity. Use only the charger supplied with the vehicle. Inspect battery connections regularly.
- Failure to properly maintain your batteries will void warranty coverage.

BATTERY CONDITIONING AND EFFECT OF LOW TEMPERATURE

New batteries cannot initially hold all of their capacity. The approximate capacity of the battery pack increases as the number of charge cycles increases.

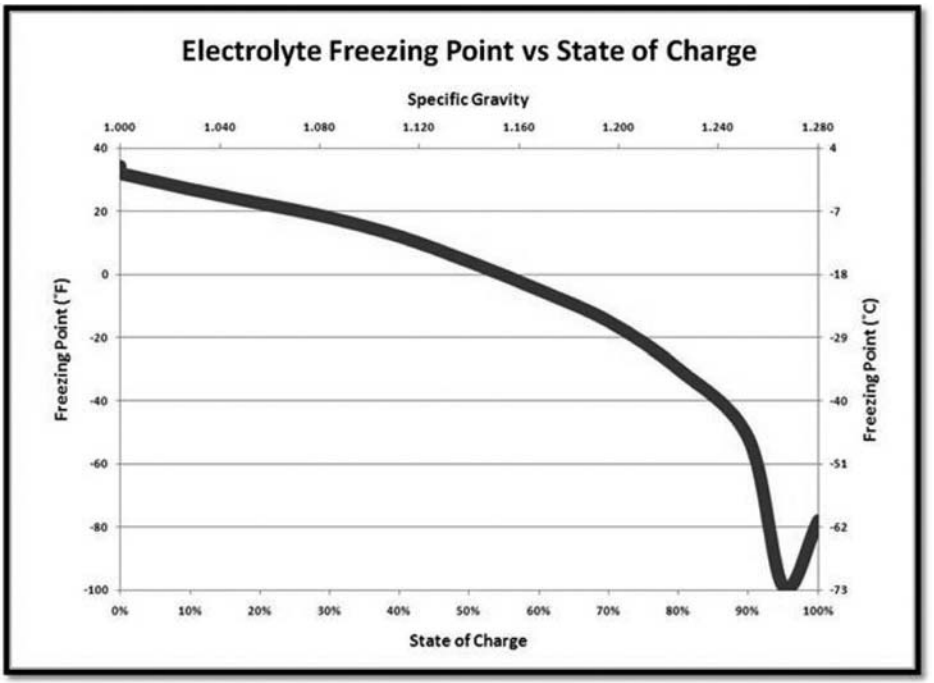
# of Charge Cycles:	New	15	30	45
Percent of Full Capacity	80%	90%	95%	100%


Battery Capacity vs Temperature
Battery Temperature (°C)
-40 -29 -18 -7 4 16 27 38 49 60
130% 120% 110% 100% 90% 80% 70% 60% 50%
% Capacity vs Temperature
-40 -20 0 20 40 60 80 100 120 140
Battery Temperature (°F)

AMBIENT TEMPERATURE IMPLICATIONS ON BATTERIES

1. Battery range decreases as ambient temperature decreases. This can affect the range by up to 30%.
2. Batteries discharge when left uncharged. They can discharge up to 13% per month (higher rates in warmer climates) with the key off and much faster if the key is left on.
3. Batteries can freeze if left uncharged at low ambient temperatures.

Percent Charged	100%	50%	0%
Approximate Freezing Point:	-60°F (-51°C)	0°F (-18°C)	25°F (-4°C)



MAINTENANCE

BATTERY PACK CARE AND MAINTENANCE

BATTERY CARE

The following maintenance is required:

1. Keep batteries clean. Ensure the battery cell tops are secure. Wash the battery tops and terminals of batteries with a solution of 1 gallon water and 1 cup baking soda. Do not allow solution to enter the batteries. Rinse off residual solution.
2. Inspect the wires and terminal connections for corrosion, fraying, or damage. Replace wires if necessary. Ensure battery wire terminal connector nuts are tightened to 100 in-lbs (11nm).
3. The electrolyte level in the batteries should be checked weekly by viewing the level indicator on each cell of the battery filling system.
4. Torque battery hold down straps to 40 in-lbs. to ensure the batteries are held in place securely.
5. After each use, the VANISH should be placed on charge. The batteries should never be left discharged longer than absolutely necessary.

WATERING GUIDELINES AND INSTRUCTIONS

The following maintenance is required:

1. **ALWAYS WATER BATTERIES AFTER FULLY CHARGING!** The electrolyte levels inside the battery rise during the charging cycle and fall during the discharge cycle.
2. **BATTERIES NEED TO BE WATERED EVERY 2-4 WEEKS** depending on battery usage, operating tempatures and the age of the batteries.

1. Be sure batteries are fully charged. Purge air from hose line attached to the 2.5 gallon tank before connecting to the watering system. Place the gravity feed tank at least three (3) feet above the top of the batteries open vent cap. This will ensure sufficient water flow.

2. Connect the 2.5 gallon gravity feed tank to the battery filling system by inserting the male connector from the kit into the female connector on the gravity feed tank.

3. When the flow indicator stops spinning, the indicator eyes come to the top on the valves giving a visual indication that the correct electrolyte level has been reached. Simply push the release button on the female connector to disconnect.

4. After watering, re-attach the plastic dust cap to keep dirt and debris from entering the watering system. Leave the dust cap on until the next watering.

SUSPENSION

VEHICLE MAINTENANCE

PERIODIC MAINTENANCE SCHEDULE

- Periodic maintenance will help keep your VANISH in the safest, most reliable condition. Inspection, adjustment and lubrication intervals of important components are explained in the chart on the following pages.
- Maintenance intervals are based upon average riding conditions and an average VANISH speed of approximately 15-mph. A VANISH that is subjected to severe use, such as operation in wet, dusty or salt-water areas, should be inspected and serviced more frequently. If you are not familiar with safe service and adjustment procedures, have your local TOMBERLIN dealer perform these operations.
- Inspect, clean, lubricate, adjust or replace parts as necessary. Inspection may reveal the need for replacement parts. Always use genuine parts available from your local TOMBERLIN dealer.

⚠ CAUTION

** Due to the nature of the adjustments marked with a ■ in the following maintenance table, it is recommended that service be performed by an authorized Tomberlin dealer.*

Adjustments marked with ► must be performed more often if VANISH is under severe use, such as dirty or wet conditions.

	Item	Hours or Miles	When	Remarks
	Brake System	Pre-ride	Pre-ride	Check Operation
	Tires	Pre-ride	Pre-ride	Check inflation (PSI Front-10 PSI, Rear-14 PSI)
	Wheels	Pre-ride	Pre-ride	Check for loose nuts
	Frame nuts, bolts, fasteners	Pre-ride	Pre-ride	Look for loose fasteners
■	Brake pad wear	10 hrs / 100 miles	Monthly	Inspect periodically; replace as necessary
■	Accelerator Cable	50 hrs	6 mos	Inspect- adjust, lubricate, replace if necessary; pre-ride inspection item
►	Steering	50 hrs	6 mos	Inspect daily, lubricate
►	Rear axle	50 hrs	6 mos	Inspect bearings, Lube
►	Front Suspension	50 hrs	6 mos	Inspect, lubricate, tighten fasteners
►	Rear Suspension	50 hrs	6 mos	Inspect, tighten fasteners
►	Rear Differential	25 hrs	Monthly	Inspect daily, adjust and lubricate if needed
	Motor Mounts	100 hrs	12 mos	Inspect
■	Toe Adjustment	As required	As re-quired	Periodic inspection, adjust when parts are replaced

LUBRICATION RECOMMENDATIONS

	Item	Lubrication Recommendation	Method	Frequency
	Transmission Oil	SAE 80W-90		Change annually or at 200 hrs.
	Front Differential Gear Oil	SAE 80W-90		
▶	Front A-arm and Rear	Grease	Locate fittings and grease	Every 3 mos.

CHECKING HYDRAULIC BRAKE FLUID LEVELS

FRONT AND REAR BRAKES

The Brake fluid Reservoir is located under the hood, behind an access panel.

Check the fluid level:
With the VANISH on level ground, check by viewing under the dashboard, the fluid level in the reservoir is between the upper and lower level lines.

BRAKE FLUID REFILLING METHOD:

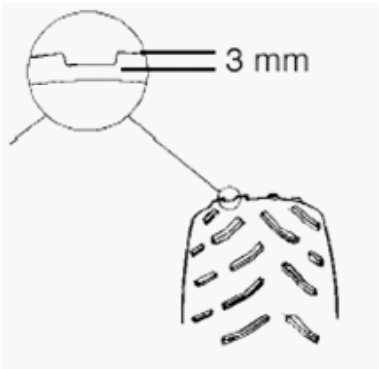
1. Take off the cover.
2. Refilling the recommended DOT-4 brake fluid until the level reaches the upper limit.
3. Put on the cover and tighten.

TIRE / TIRE PRESSURE / TIRE INSTALLATION

Range is significantly affected by tire pressure, alignment, terrain and driving style. Always maintain proper tire pressure as specified on safety labels.

Important Safeguards:

- Maintain proper tire pressure according to the following chart.
- Always use original size, load capacity and type tire.
- Make certain the wheels are installed properly
- Always replace tires when tread depth is worn to 1/8 in. (3 cm) or less.



Tread Depth

Model	Tire Size		PSI		Wheel Nut Torque
	Front	Rear	Front	Rear	
VANISH	25 x 8 - 12”	25 x 10 -12”	10	14	28 ft. lbs.

WHEEL REMOVAL PROCEDURE

1. Stop the motor and lock the parking brake.
2. Loosen the wheel nuts slightly.
3. Elevate the side of the vehicle by placing a suitable stand under the footrest frame.
4. Remove the wheel nuts and remove the wheel.

WHEEL INSTALLATION

1. Lock the parking brake; place the wheel in the correct position on the wheel hub. Be sure the valve stem is toward the outside and rotation arrows on the tire point toward forward rotation.
2. Attach the wheel nuts and finger-tighten them.
3. Lower the vehicle to the ground.
4. Securely tighten the wheel nuts according to the chart below.

Item	Specification
Front/Rear Wheel Nuts	22 – 29 ft lbs (30 – 40 Nm)
Front Hub Nut	42 – 45 ft lbs (58 – 62 Nm)
Rear Hub Nut	78 – 81 ft lbs (108 – 112 Nm)

TIGHTNESS

The following items should be checked occasionally for tightness.

HUB NUT TORQUE SPECIFICATIONS

Front Hub Nuts	42 – 45 ft. lbs (58-62 Nm)
Rear Hub Nuts	78 – 81 ft. lbs (108-112 Nm)

NOTE: All nuts that have a cotter pin installed must be serviced by an authorized dealer.

FRONT WHEEL HUB TIGHTENING

Front wheel bearing tightness and spindle nut retention are critical component operations.
Service work must be performed by your authorized TOMBERLIN AUTOMOTIVE GROUP dealer.

ACCELERATOR FREEPLAY

If the accelerator pedal has excessive play due to cable stretch or incorrect adjustment, it will cause a delay in accelerator response, especially at low motor speed. The accelerator may also not open fully.

ACCELERATOR FREEPLAY INSPECTION

1. Place the transmission in neutral. Set the parking brake.
2. Turn key switch on.
3. Measure the distance the accelerator pedal moves before the motor begins to pick up speed. Freeplay should be 1/8 to 1/4 inches.

STEERING INSPECTION

The steering assembly of the VANISH should be checked periodically for loose nuts and bolts. Before driving the VANISH, tighten any loose nuts and bolts you find.

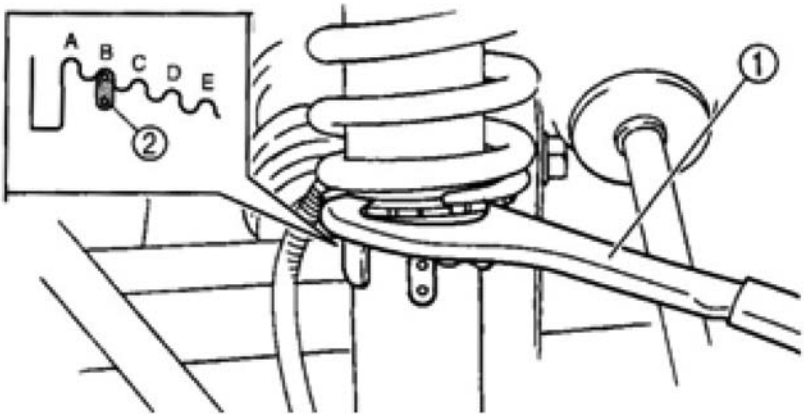
CAMBER AND CASTER

Not adjustable. See your dealer.

TOE ALIGNMENT

See your local TOMBERLIN dealer.

FRONT SUSPENSION



Front Adjuster Ring
1(Special Wrench) 2(Position Indicator)

The front R/L side suspensions can be adjusted to any of five (5) pre-load positions so they can be matched to load and riding conditions. Always be sure to adjust both front left and front right shock absorbers to the same position. Failure to do so could result in severe injury or death.

REAR SUSPENSION

Rear Adjuster Ring

The rear suspension can be adjusted with the threaded adjustor ring at the base of the rear shocks. Adjust to the proper setting for load and riding conditions. Always be sure to adjust both front left and front right shock absorbers to the same position and insure locking ring if tight against adjusting ring. Failure to do so could result in severe injury or death.

GEARCASES

LUBRICATION

REAR DIFFERENTIAL LUBRICATION

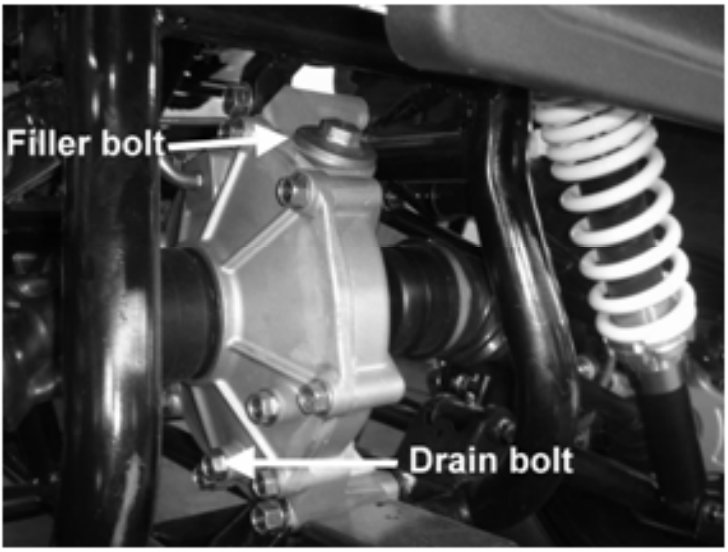
The rear differential lubricant level should be checked and changed in accordance with the maintenance schedule.

- Be sure vehicle is level before proceeding.
- Check vent hose to be sure it is routed properly and unobstructed.

THE DIFFERENTIAL GEAR OIL

Changing the differential gear oil:

1. Place the vehicle on a level surface.
2. Place a container under the differential/final gear case to collect the used oil.
3. Remove the oil filler bolt and the drain bolt to drain the oil.
4. Install the drain bolt, and then tighten it to the specified torque.
5. Add the recommended differential gear oil up to the brim of the filler hole.
6. Install the oil filler bolt, and then tighten it to the specified torque.
7. Check for oil leakage. If oil leakage is found, check for the cause.



Final Gear

The recommended gear oil is SAE 80W-90
Refill the differential oil about 150 ml.
The filler/drain bolt toque: 24 Nm

TRANSMISSION (2-SPEED)

Always check and change the transmission oil at the intervals outlined in the Periodic Maintenance Chart. Maintain the oil level even with the bottom thread of the fill plug hole. Refer to the transmission Specifications Chart for recommended lubricants, capacities and torque specifications.

OIL CHECK

The fill plug is located at the right rear of the vehicle.

1. Position the vehicle on a level surface.
2. Remove the fill plug.
3. Check the oil level.
4. Add the recommended oil as needed.
5. Reinstall the fill plug. Torque to specification.

OIL CHANGE

The drain plug is located on the lower right side of the transmission, near the fill plug. Refer to the transmission Specifications Chart for recommended lubricants, capacities and torque specifications.

1. Remove the fill plug.
2. Place a drain pan under the drain plug.
3. Remove the drain plug. Allow the oil to drain completely.
4. Wipe the magnetic end of the drain plug clean to remove accumulated metallic filings.
5. Reinstall the drain plug. Torque to specification.
6. Add the recommended oil as needed. Do not overfill.
7. Reinstall the fill plug. Torque to specification.
8. Check for leaks.
9. Dispose of used oil properly.

FRONT DIFFERENTIAL

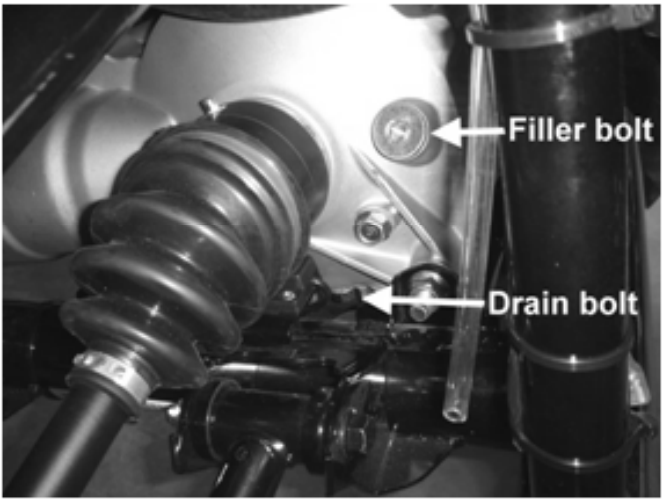
Always check and change the front differential oil at the intervals outlined in the Periodic Maintenance Chart. Maintain the oil level even with the bottom thread of the fill plug hole. Refer to the Differential Specifications Chart for recommended lubricants, capacities and torque specifications.

OIL CHECK

1. Position the vehicle on a level surface.
2. Remove the fill plug.
3. Check the oil level.
4. Add the recommended oil as needed.
5. Reinstall the fill plug. Torque to specification.

OIL CHANGE

1. Support the vehicle securely with a jackstand.
2. Remove the front tire on the driver's side.
3. Remove the fill plug.
4. Place a drain pan under the drain plug on the bottom right-hand side.
5. Remove the drain plug. Allow the oil to drain completely.
6. Clean the drain plug. Reinstall the drain plug. Torque to specification.
7. Add the recommended oil.
8. Reinstall the fill plug. Torque to specification.
9. Check for leaks.
10. Discard used oil properly.

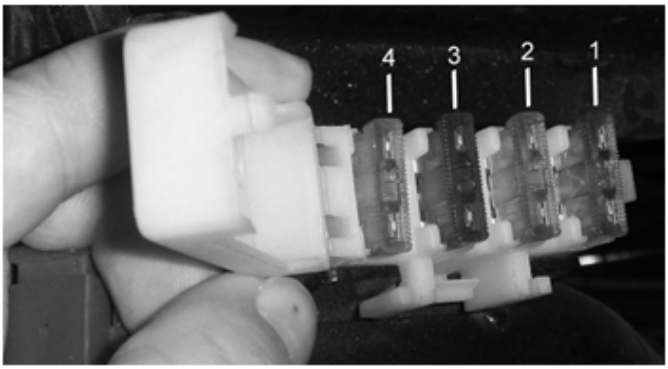


Changing the front differential

FUSE

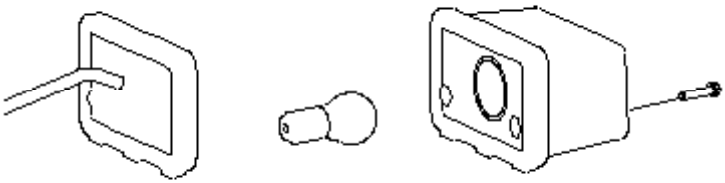
The fuses are located under the hood, behind the access panel. One 15A spare fuse is provided inside the fuse box. Fuses are designed to open when a circuit overload exists in individual electrical system circuits. If any electrical system fails to operate, then the fuses should be checked.

FUSE LIST



1. 30A CHARGE (Green)
2. 15A MAIN (Blue)
3. 10A LIGHT (Red)
4. 15A SPARE (Blue)

BRAKELIGHT LAMP REPLACEMENT



If the brake or turn signal light does not work the bulb may need to be replaced.

1. Remove the taillight lens cover mounting screws.
2. Remove the lens cover and set aside for reassembly.
3. Remove the bulb.
4. Apply dielectric grease to the socket and install a new bulb.
5. Test the taillight/brake light for proper operation.
6. Reinstall the lens cover.

PERIODIC MAINTENANCE RECORD

Use the following chart to record periodic maintenance work:

Maintenance Interval Performed	Servicing Date	Servicing Dealer or Person	Remarks
First 5 hrs.			
20 hrs.			
50 hrs.			
75 hrs.			
100 hrs.			

SCHEDULED MAINTENANCE PROCEDURE

Scheduled inspection procedures for VANISH		
Scheduled Interval	**Inspection**	
Routine maintenance by owner	Accelerator pedal	Check if it is capable of normal operation (adjust when necessary)
	Accelerator micro-switch	Check if it is capable of normal operation
	Battery pack	Ensure adequate charge
	Service brake system	Check if it is capable of normal operation, adjust when necessary
	Charger and socket	Check if it is free of damage and mechanically sound
	Parking brake system	Check if it is capable of normal operation, adjust when necessary
	Reverse	Check if it is capable of normal operation
	Key Switch and Drive Select	Check if it is capable of normal operation
	Tires	Check if abrasion or deterioration has occurred, check tire pressure
	Warning decals	Ensure that all decals are in appropriate location and of appropriate quality

Weekly Inspection by owner	Battery Pack	Clean the posts and remove the dust thoroughly. Check electrolyte level. (Do not overfill)
	Wires and Ports	Check if they are secure, verify that they are undamaged
	Entire vehicle	Check if the parts are loose, tighten as needed
		Check maximum speed of vehicle (<25 mph)
	Tires	Check tire pressure and adjust to 10 PSI (FRONT) 14 PSI (REAR)
Check all items included in above-mentioned routine checks		

Monthly inspection items by owner or qualified mechanic	Battery Pack	Clean the ports and remove the dust thoroughly. Check electrolyte level. (Do not overfill)
	Service brake system	Check if it is capable of normal operation, check if the braking pedal movement has appropriate range of motion, and adjust when necessary. Check if the brake wire is damaged, replace if necessary.
	Accelerator micro-switch	Check if there is any flaw or damage, ensure that the switch is fixed to the framework
	Front-wheel bearing	Check if there is any flaw or damage, ensure that the switch is fixed to the framework
	Front and Rear Differential	Check the front and rear differential and fill oil to oil seal position
Check all items included in above routine/weekly checks		

Quarterly inspection items by owner or qualified mechanic	Accelerator pedal	Check if it is capable of normal operation (adjust when necessary)
	Driving System	Carry out lubrication as per schematic diagram for lubrication of vehicle
	Entire vehicle	Carry out lubrication as per schematic diagram for lubrication of vehicle
	Brake Fluid	Check the hydraulic fluid and fill to highest position
Check all routine/weekly/monthly inspection items		

Semi-Annual Inspection items by qualified mechanic	Battery Pack	Check the specific gravity, electrolyte level height and charging voltage
	Service brake system	Check if it is capable of normal operation, check if the service brake system is capable of adequate movement; clean and adjust as necessary Check the brake shoes, and replace them when necessary
	Wires	Check if there is any rupture, breakage, or short circuit
	Direction selector	Check contact and wire connection, ensure secure connection
	Front wheel alignment	
	Entire vehicle	
Check all of the above routine/weekly/monthly/quarterly inspection items		

SCHEDULED OILING/LUBRICATION PROCEDURES FOR ELECTRIC VEHICLE

Scheduled Interval	Inspection	Position	Recommended lubricating oil
Quarterly inspection items by owner or qualified mechanic	Brake pedal mainshaft	1	General-purpose lithium base grease
	Mainshaft and button head pin, parking brake pedal	2	General-purpose lithium base grease
	Shaft, accelerator pedal	3	General-purpose lithium base grease
	Reservoir	4	Brake fluid (DOT3000)
	Front suspension	5	General-purpose lithium base grease
Annual Inspection Items to be carried out by qualified mechanic only	Check the driving axle and fill 20.3 oz. gear lube (see service manual for instructions)	6	AE 80W-90 transmission oil
	Check the front-wheel bearing	7	General-purpose lithium base grease

STORAGE & CLEANING

STORAGE

When your VANISH is to be stored for a period of more than 60 days, certain preparations should be made for the motor and fuel system to prevent rust and/or corrosion of motor parts.

Supplies Needed:

- Vinyl & rubber protectant
- SAE 80W-90 transmission oil
- SAE 80W-90 rear gearcase oil

1. Clean, wash, and dry VANISH. Apply vinyl and rubber protectant to all vinyl and plastic surfaces.
2. Clean battery leads and charge batteries with on-board charger. Leave connected during storage.
3. Place unit on stand so tires are not touching the ground and let all the air out. This will keep tires from getting flat spots.
4. Drain and refill the transmission oil with 20.3 oz. (600 cc.) SAE 80W-90.
5. Lubricate cables with SAE 80W-90 oil or chain & cable oil.

Batteries in a low state of charge are more likely to freeze. Charge batteries fully before storing the vehicle.

1. Turn the key off, place FWD/REV switch in Neutral, and chock the wheels to prevent rolling. Do not apply the parking brake.
2. Fully Charge the batteries. If possible, keep the battery charger hooked up to the vehicle so that the batteries will not discharge. A computer on the charger will automatically monitor and charge the batteries. If a reliable AC power supply is not available, disconnect the charger from the vehicle and disconnect the batteries.
3. Clean battery tops and terminals with a solution of

water and baking soda (1 gallon of water for 1 cup of baking soda). Do not allow this solution to enter the batteries.

4. Inspect and clean battery wires. Damaged or frayed wires should be replaced. Store the vehicle in a cool, dry location.
5. Lubricate front suspension and all other periodic lubrication points.

CLEANING AND APPEARANCE

Keeping your VANISH clean will not only improve its appearance but it can also extend the life of various components. With a few precautions, your VANISH can be cleaned much like an automobile.

WASHING

It is recommended to use automobile car wash soaps and mild household cleaners. Do not use a pressure washer as the overspray may damage some of the electrical components, especially the batteries, charger and control switches.

Many expensive repair bills can result from the damage caused by the high-pressure wash to wheel bearings, transmission seals, body panels, brakes and warning labels. Battery acid, bugs, asphalt, and tar should be washed away with mild non-reactive solvents to prevent possible staining.

The best and safest way to clean your VANISH is with a garden hose and a pail of mild soap and water. Use a professional type washing mitten, cleaning the upper body first and the lower parts last. Rinse with water frequently and dry with a chamois to prevent water spots. NOTE: If warning labels are damaged, contact your TOMBERLIN dealer for replacement.

WAXING

Your VANISH can be waxed with any non-abrasive past wax. Avoid the use of harsh cleaners since they can scratch the body finish.

TRANSPORTING

Whenever the VANISH is to be transported the following measures should be taken.

1. Turn key to OFF, place transmission in “H” gear.
2. Always tie the frame of the VANISH to the transporting unit securely using suitable straps.
3. Always lock the parking brake.

WARRANTY

TOMBERLIN LIMITED WARRANTY FOR VANISH LSV

1. WARRANTY

Tomberlin Automotive Group, Inc. hereby warrants to the original purchaser of a new Model VANISH shall be free from defects in material and workmanship under normal use and service for the periods stated below, subject to the provisions, limitations, and exclusions contained in this limited warranty.

LIMITED ONE YEAR: All non-wear vehicle components including the 6-Volt Batteries, solid state controller, vehicle frame, chassis, suspension (a-arms, shock absorbers, shock mounts, and associated hardware), rack and pinion steering gearbox, transaxle, motor, and charger are warranted for one year or 5,000 miles whichever occurs first, with respect to parts and labor against defects in material and workmanship from date of delivery.

Such repair labor shall be performed only by Tomberlin Automotive Group, Inc., its authorized Tomberlin Automotive Group dealers or distributors, or a service agent approved by the Tomberlin Automotive Group.

IF THE VEHICLE WARRANTY REGISTRATION FORM IS NOT COMPLETED AND RETURNED TO THE TOMBERLIN AUTOMOTIVE GROUP AT THE TIME OF THE ORIGINAL RETAIL TRANSACTION, THIS WARRANTY MAY BE CONSIDERED VOID. PLEASE INSURE THAT YOUR DEALER HAS WARRANTY REGISTERED YOUR VANISH.

2. LIMITED WARRANTY EXCLUSIONS

THE PROVISIONS OF THIS LIMITED WARRANTY SHALL NOT APPLY TO FAILURE DUE TO:

a. Abuse or neglect such as overcharging, undercharging, improper battery fluid level maintenance, loose wiring or rusted or corroded hardware;

b. Lack of proper maintenance as described in the vehicle's Operator's Manual;

c. Damages caused by improper installation of a component;

d. Vehicles charged by systems other than the Tomberlin charger provided with the VANISH;

e. Neglect, breakage, freezing, fire, explosion, wreckage, flooding, the addition of any chemical, or excessive operation of the battery in an undercharged condition (below half charge 1,200 specific gravity).

f. Semiconductor parts such as diodes and fuses which are vulnerable to electrical overloads (including lightning strikes).

Transportation expenses for warranty services are excluded from this warranty.

Also excluded from any Tomberlin Automotive Group warranty are all fuses, decals (except safety decals), light bulbs, lubricants, trim pieces, seats, and routine wear items such as the charger cord, plug, and receptacle, brake pads/shoes, brushes, bushings, mats and pads, maintenance adjustments, cosmetic deterioration, and items which deteriorate or fail due to exposure or ordinary wear and tear. Also excluded from warranty is damage to a vehicle or component resulting from a cause other than a defect including unreasonable or unintended strain or use, improper installation of accessories, installation of parts or accessories that are not original equipment, overloading, accident, alteration, abuse or neglect.

Without limiting the generality of the foregoing in any way, and as part of its limited warranty exclusion, Tomberlin Automotive Group does not warrant that the original VANISH components are suitable for use in any application. As is the use of any electrical device, a prudent owner will read and study the vehicle's Owner's Manual, the charger's owner's manual, the operating instructions, and all warning labels; and will exercise due care in working on or around electrical devises.

3. VOIDING OF WARRANTY:

THIS AND ANY OTHER WARRANTY SHALL BE VOID IF THE VEHICLE IS ABUSED OR USED IN AN UNINTENDED MANNER OR SHOWS INDICATIONS THAT IS HAS BEEN ALTERED IN ANY WAY, INCLUDING, BUT NOT LIMITED TO, MODIFICATION OF THE SPEED GOVERNOR, TIRE DIAMETERS, BRAKING SYSTEM, STEERING, TRANSAXLE, OR OTHER OPERATING SYSTEM OF THE CAR THAT CAUSE IT TO PERFORM OUTSIDE OF TOMBERLIN SPECIFICATIONS. THE WARRANTY IS LIKEWISE VOID IF THE CAR INVOLVED SHOWS INDICATIONS THAT REASONABLE OR NECESSARY MAINTENANCE AS OUTLINED IN THE OWNER'S MANUAL AND MAINTENANCE AND SERVICE MANUAL WAS NOT PERFORMED AT THE TIME AND IN THE MANNER SPECIFIED IN SUCH MANUALS.

WARNING: any modification or alteration of any vehicle beyond factory specifications, including those affecting weight distribution, stability, or speed of the vehicle, can cause serious personal injury or death.

4. SOLE REMEDY: Tomberlin Automotive Group's liability under this limited warranty, or in any action whether based upon warranty, contract, negligence, strict product liability, or otherwise, shall be the repair or replacement, at Tomberlin Automotive Group's option, of the vehicle or component thereof that is deemed to be defective. Replacement shall mean furnishing, during the applicable

limited warranty period, a new vehicle or factory-reconditioned vehicle or component thereof that is identical or the reasonable equivalent to the warranted product or component at no cost to the purchaser. Repair shall mean remedying a defect in the vehicle or component thereof at no cost to the purchaser during the applicable limited warranty period. If Tomberlin Automotive Group elects to repair the vehicle, it may provide factory-reconditioned parts or components. All parts and components replaced under warranty shall become the property of Tomberlin Automotive Group and Tomberlin Automotive Group reserves the right to test any component returned for warranty.

5. HOW TO MAKE A WARRANTY CLAIM: To make a warranty claim under this limited warranty, contact your local Tomberlin Automotive Group authorized dealer.

6. DISCLAIMER THIS LIMITED WARRANTY IS EXCLUSIVE. TOMBERLIN AUTOMOTIVE GROUP MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED. ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE OBLIGATIONS OR TIME LIMITS STATED IN THIS WARRANTY ARE HEREBY DISCLAIMED BY THE TOMBERLIN AUTOMOTIVE GROUP AND EXCLUDED FROM THIS WARRANTY. THE USER AND TOMBERLIN AUTOMOTIVE GROUP EXPRESSLY AGREE THAT THE REMEDY OF THE REPLACEMENT OR REPAIR OF THE DEFECTIVE VEHICLE OR COMPONENT THEREOF IS THE SOLE REMEDY OF THE USER. TOMBERLIN AUTOMOTIVE GROUP MAKES NO OTHER REPRESENTATION OR WARRANTY OF ANY KIND, AND NO REPRESENTATIVE, EMPLOYEE, DISTRIBUTOR OR DEALER OF TOMBERLIN AUTOMOTIVE GROUP HAS THE AUTHORITY TO MAKE OR IMPLY ANY REPRESENTATION, PROMISE, OR AGREEMENT, WHICH IN ANY WAY VARIES THE TERMS OF THIS WARRANTY.

7. NO CONSEQUENTIAL DAMAGES: IN NO EVENT SHALL THE TOMBERLIN AUTOMOTIVE GROUP BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS RELATING TO PROPERTY OTHER THAN THE VEHICLE, LOSS OF USE, LOSS OF TIME, INCONVENIENCE, OR ANY OTHER ECONOMIC LOSS. Some states allow neither limitation on the duration of an implied warranty nor exclusions or limitation of incidental or consequential damages. Therefore, the above limitations or exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

8. INFORMATION: For further information contact Tomberlin Automotive Group or a Tomberlin Automotive Group Authorized dealer or distributor.

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